CSIR NEWS

VOL. 12 NEW DELHI—JAN. 8, 1962 : PAUS 19, 1883 No. 1

MEETINGS

Executive Council

CL, Poona	Jan. 18, 1962	Bombay House, Bruce St., Bombay, 11.00 a.m. Chairman : Shri P.A. Narielwala

Research Committees

lectrical & Mechanical Engineering Research Committee	Jan. 20, 1962	Conference Room, NAL, Bangalore; 3.45 p.m. Chairman : Prof. M.S. Thacker
harmaceutical & Drugs Research Committee	Jan. 24, 1962	CDRI, Lucknow ; 10.30 a.m. Chairman : Dr. K.A. Hamied
hemical Research Committee	Jan. 27, 1962	ATIRA, Ahmedabad ; 10.00 a.m. Chairman : Dr. B.C. Guha
ivil Engineering & Hydraulic Research Committee	Jan. 27, 1962	Conference Room, CSIR Secretariat, New Delhi ; 2.30 p.m. Chairman : Lt. Gen. H. Williams
adio Research Committee	Jan. 31, 1962	Conference Room, NPL, New Delhi ; 10.30 a.m. Chairman : Prof. K.R. Ramanathan

CMERI Foundation Stone

Prof. Humayun Kabir, Minister r Scientific Research & Cultural ffairs and Vice-President of SIR laid the Foundation Stone the Main Building of the entral Mechanical Engineering esearch Institute, Durgapur at ceremony held at the Institute Dec. 31, 1961. During the urse of his address, Prof. Kabir ferred to the awareness in various untries of applying scientific owledge to the solution of oblems of production and the ntral role of the Institute in the velopment of machine tool dustry in the country.

Prof. M.S. Thacker, Directoreneral, Scientific & Industrial esearch, in his welcome address ressed the necessity of developing cilities for research in various lds of engineering and technology d referred to the assistance of the N Special Fund for establishment the Institute.

Shri V. Cadambe, Director of e Institute, proposed a vote of anks.

TRA Technological Conference

The third Technological Conrence of the Bombay Textile esearch Association, Bombay will held during Jan. 22-24, 1962. of. M. S. Thacker, Director-General, Scientific & Industrial Research, will inaugurate the Conference.

PERSONAL

Appointments

SHRI R. SANKAR—Senior Scientific Officer : Grade II, NAL, Bangalore (Oct. 30, 1961).

SHRI S.G. NANJUNDASWAMY—Senior Scientific Officer : Grade II, CMERI, Durgapur (Dec. 2, 1961).

SHRI K. C. MALIK, Senior Scientific Officer : Grade II, CMRS, Dhanbad—Senior Scientific Officer : Grade II, IIP (Dec. 15, 1961).

SARVASHRI P. K. SEN & S. C. BANERJEE—Junior Scientific Officers, CMRS, Dhanbad (Dec. 1 & Dec. 2, 1961 respectively).

(*Contd. on p. 4, col. 1*)

Research Unit for Genetics and Biometry

A 'Genetics and Biometry Research Unit' has been established by the CSIR at Barrackpore, West Bengal. Prof. J. B. S. Haldane, F.R.S., lately Research Professor, Indian Statistical Institute, Calcutta has been appointed Head of the Unit.

CMERI, DURGAPUR—Prof. Humayun Kabir, Minister for Scientific Research & Cultural Affairs laid the Foundation Stone of the Institute

B R I E F S

Seminar on Aeronautical Sciences

The Seminar on Aeronautical Sciences held at the National Aeronautical Laboratory, Bangalore, from Nov. 27 to Dec. 7, 1961 was inaugurated by Shri Jayachamaraja Wadiyar, Governor of Mysore. Prof. M.S. Thacker, Director-General, Scientific & Industrial Research, presided.

About 60 papers, presented and discussed at the symposium in eight technical sessions included the following subjects : Aviation meteorology, aircraft structures and materials, aerodynamics, fluid mechanics, wind tunnel design and testing, aircraft propulsion and flight research, and aviation electronics.

A large number of aeronautical engineers, scientists and meteorologists from India and abroad participated in the seminar. Amongst the foreign delegates who attended the seminar were : Prof. M. J. Lighthill, F. R. S. and Mr. W. A. Johnson, Royal Aircraft Establishment, Prof. H. C. H. Gurney, University College of South Wales, Prof. G. A. Whitefield, College of Aeronautics, Dr. R. C. Lock, National Physical Laboratory, Mr. J. A. Kirk of De Havilland Aircraft Co. Ltd, Dr. R. N. Cox, Armament Research and Development Establishment and Mr. J. F. Coplin of Rolls Royce Limited from the United Kingdom ; Prof. R. Kawamura, Aeronautical Research Institute, University of Tokyo, Japan ; Dr. Frank L. Wattendorf, Director, Advisory Group for Aeronautical Research Institute, France ; Mr. L. R. Lucassen from National Aero- and Astronautical Research Institute, Amsterdam ; Mr. F. W. Hooton, Aeronautical Research Laboratories, Melbourne ; and Mr. Arthur A. Regier, National Aeronautics and Space Administration, U. S. A.

Symposium on Mechanisation of Mines

The four-day symposium on Mechanisation of Mines in India organised by the Central Mining Research Station, Dhanbad concluded on Dec. 12, 1961. Prof. M. S. Thacker, Director-General, Scientific & Industrial Research, inaugurated the symposium. Shri A. Zaman, Chairman, Coal Board and Chairman, Executive Council, CMRS, presided over the inaugural function.

The symposium was attended by about 1,500 mining engineers including one hundred from foreign countries (U.S.S.R., U.S.A., U.K., France, Germany, Canada, Australia, Poland, Hungary and New Zealand).

Seventy-two papers pertaining to following aspects of mechanisation of mines were presented and discussed : Winning methods of works and detailed operation, transport, ventilation, blasting, supports and roof control, and safety control. Besides, four special papers on important aspects of coal mining in India were presented by Shri G. S. Jabbi, Chief Inspector of Mines of India, Shri A.B. Guha, Coal Mining Adviser to the Government of India, Shri S. Bagchi, Deputy Director, CMRS, Shri R.C. Dutt, Managing Director, National Coal Development Corporation and Shri R. H. Wright of Andrew Yule & Co.

Conjointly with the symposium, an exhibition of mine machinery and equipment in which leading firms from 14 countries participated was also organised.

Refresher Course on Fuels and Lubricants for Diesel Engines

The one-week refresher course on 'Fuels and Lubricants for Diesel Engines' arranged by the Indian Institute of Petroleum (IIP) in the Bureau of Petroleum Information Building, New Delhi ended on Dec. 9, 1961. About 40 persons representing oil companies, Indian Bureau of Mines, Oil and Natural Gas Commission, Railways, various Ministries of Government of India (including Ministry of Steel, Mines and Fuel), and private institutions attended the course. Messrs F. J. Kermarec, M. Flamand and M. Venot, French Experts working at IIP under the Indo-French Technical Cooperation Agreement and Dr. J. S. Ahluwalia, Officer-on-special Duty, IIP, delivered lectures.

U. A. R. Scientists in India

A delegation of four eminent scientists of the United Arab Republic arrived at New Delhi on Dec. 29, 1961 for one-week tour of India at the invitation of the CSIR.

The delegation, sponsored by Indo-U. A. R. Agreement for Exchange of Cultural and Scientific Delegations, includes the following scientists . Dr. Ali Shoib, Rector, University of Alexandria; Dr. Abdel Latif Durred Din, Dean, Faculty of Agriculture, University of Cairo ; Dr. Abdel Wahab El-Brolosy, Dean, Faculty of Medicine, Assiut University and Dr. Mostafa Kamal Tolba, Asstt. Professor, Faculty of Science, University of Cairo. During their stay, the scientists visited research institutions and national laboratories including the Central Road Research Institute, New Delhi and the National Chemical Laboratory, Poona. The delegation left for Cairo on Jan. 6, 1962.

Shri T.V. Ramamurti, Officer-on-Special Duty, NPL, New Delhi, receiving the K. L. Moudgil Prize for 1961, awarded by ISI for his contribution to preparation of Indian Standards, from Shri K.C. Reddy, Minister for Commerce and Industry

RESEARCH IN PROGRESS

National Laboratories

CGCRI, CALCUTTA

Origin of Colour in Copper Red Glasses—The red colour in copper ruby glass is generally attributed to colloidal particles of metallic copper dispersed in glass. But studies of the (i) reducing conditions under which glass is melted, (ii) chemical durabilities of chilled and heat-treated copper red glasses, and (iii) striking of colour under different schedules of temperature and time show that there is a greater possibility that the red colour in glass is due to the presence of colloidal cuprous oxide and not to metallic copper. Determination of transmission characteristics of the glasses and the study of the properties of colloidal cuprous oxide and of colloidal copper in aqueous system supports the finding.

CBRI, ROORKEE

Fly Ash-Clinker Bricks—New use of industrial wastes like fly ash and clinker has been developed. Bricks suitable for buildings have been prepared from Durgapur fly ash and local clinker by admixture with cement (3 : 6 : 1) and pressing the mixture into mould at 22 per cent moisture level and 20 tons pressure. The compressive strength and drying shrinkage of such bricks after 28 days of water curing are about 1175 lb./sq. in. and 0.07 per cent respectively. The bricks may replace ordinary clay bricks in those parts of the country where the quality of clay bricks is poor and the cost is high—S.S. Rehsi & S.K. Garg.

RRL, HYDERABAD

Refining of Cottonseed Oil—A method for obtaining cottonseed oil and soapstock of improved colour from crude oil, based on the addition of hydrogen peroxide prior to alkali-refining, has been developed. The method is also suitable for treating colour-fixed cottonseed oil which is at present re-refined with a further oil loss of about 3 per cent to make it acceptable by vanaspati manufacturers. The additional cost incurred on the additive is compensated by the higher yield (about 3 per cent) of the refined oil.

No extra equipment is required in adopting the method. The plant output and running cost are also unaffected— P.L. Narayana Rao, K.T. Achaya & S.H. Zaheer.

Sponsored Research

Antitubercular Antibiotics—Search for new antibiotics from soil Actinomycetes is in progress. Of the 25 active Actinomycetes isolated, one pertaining to a new strain of Streptomyces has proved active against *Mycobacterium tuberculosis*.

Experiments carried out for finding out a cheap and effective medium for large scale production of the antibiotic indicate that a medium based on cooked pulses flour, groundnut cake and mustard oil cake is promising—(Mrs) S. Chandrasekhar & R. Seshadri, Vallabhbhai Patel Chest Institute, Delhi.

Cholesterol Biosynthesis—Role of sex hormones in the inter-relationship of dietary lipid and cholesterol biosynthesis, when hormones of opposite physiological activity are administered to male and female rats on different experimental diets, has been investigated.

The study shows that the female hormone, ethinyl oestradiol, appreciably depresses cholesterol biosynthesis in males, whereas the male hormone, ethyl testosterone, increases the synthesis of cholesterol in females by 30 per cent. Preliminary experiments on the effect of intraperitoneal administration of sex hormone on the degradation of cholesterol show that an increase in turnover rate of cholesterol is obtained with the female hormone.

The effect of oral adminstration of graded doses of linoleate on fat-deficient rats as regards cholesterol metabolism has also been studied. The results show that the female hormone is involved more in the mobilisation of cholesterol from the liver into the blood than in its synthesis. The supplementation of diet with graded essential fatty acid in conjunction with the administration of hormones induces in male rats a gradual increase in synthesis rate as well as a progressive fall in liver cholesterol indicating a mobilization of cholesterol by synergetic effects existing between sex hormones and essential fatty acids—S. Mukherjee & (Mrs.) S. Gupta, University College of Science & Technology, Calcutta.

Studies on Dropping Mercury Electrode—Effect of concentration of surface active substance or indicator (bromothymol blue), temperature, concentration and *p*H of indifferent electrolyte, a.c. pulses, rate of flow of mercury, and drop-time of capillary, on the capacity of the electric double layer at the dropping mercury electrode (d.m.e.) has been studied.

The capacity of d. m. e. decreases and desorption peak increases with increasing concentration of indicator. The desorption potential is not altered with the change in the concentration of indicator. A slight increase in the diminution of capacity is observed with increase in temperature up to 30°C. With increase in concentration of indifferent electrolyte (potassium chloride) the depression of the capacity increases but the maximum is almost unaffected. The depression of the capacity and magnitude of maximum diminish with increase of a.c. pulse, rate of flow of mercury and drop-time of capillary. The desorption potential shifts to lower cathodic potential with lowering of *p*H. In acid range, the magnitude of the maximum increases regularly with increase in *p*H, whereas in alkali range, the behaviour is irregular—S.L. Gupta & (Miss) L. Saraswathi, Birla Science College, Pilani;

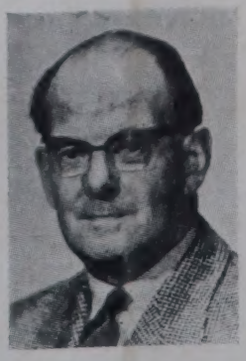
Research Schemes Terminated

1. *Basic study and application of sands*—Prof. Alam Singh, M. B. M. Engineering College, Jodhpur (Nov. 14, 1961).

2 & 3. *Physical oceanography*; and *Study of drop size distribution in different types of precipitation, etc.*—Prof. R. Ramanadham, Andhra University, Waltair (Dec. 30, 1961).

4. *Design and development of water reaction turbines of small capacity*—The Principal, P. S. G. College of Engineering, Coimbatore (Dec. 30, 1961).

Mr. Braddock at CMERI



Mr. Edward James Braddock of the National Physical Laboratory (NPL), Teddington (U. K.) and Unesco Expert arrived at the Central Mechanical Engineering Research Institute (CMERI), Durgapur on Nov. 26, 1961. He will be incharge of the Workshop and Drawing Office of the Institute.

Mr. Braddock (*b.* 1905), after his education, worked for many years in industrial concerns, chiefly *Leyland Motors Ltd.* In 1938, he joined the Department of Scientific and Industrial Research (NPL, Teddington) and has been in charge of the Laboratory Workshop, engaged in the development and production of prototype scientific apparatus.

PERSONAL

(*Contd. from p. 1, col. 3*)

SARVASHRI V.K. GHOSH & M.K. DHAR—Junior Technical Officers, CSIO, New Delhi (Nov. 24 & Dec. 7, 1961 respectively).

Promotions

SHRI R.N. SENGUPTA—Senior Technical Officer : Grade II, NAL, Bangalore (Nov. 20, 1961).

SHRI V. VENKATARAMAN, Senior Scientific Assistant, NPL, New Delhi —Junior Scientific Officer, CMERI, Durgapur (Dec. 8, 1961).

SHRI C.K. SAKSENA, Assistant, CSIR Secretariat, New Delhi—Section Officer, IIP (Dec. 19, 1961).

SHRI K.N.N. NAYAR, Senior Technical Assistant, Publications Directorate, CSIR, New Delhi is looking after the duties of Documentation Officer, in addition to his own, with effect from Dec. 7, 1961 consequent on Shri S.P. Phadnis relinquishing charge of his post.

Nominations

DR. K.N. SINHA, Officer on special Duty, CMRS, Dhanbad—Member, Technical Committee on Minerals of the Natural Resources Committee, Planning Commission ; Engineering Division Council, Indian Standards Institution, and Advisory Committee on Stowing and Sub-Committee to examine transportation of coal through pipe lines, Ministry of Steel, Mines & Fuel, New Delhi.

DR. A. LAHIRI, Director, and SHRI S.K. DAS GUPTA, Asst. Director, CFRI, Jealgora—Member and Alternate Member respectively of the Committee appointed by CSIR to consider proposal for establishment of a Cross-Country Gas Grid for Supply of Fuel Gas for Domestic Use.

SHRI B.N. SASTRI, Chief Editor, Publications Directorate, CSIR, New Delhi—Member, Publications Committee, Planning Commission.

Honours & Awards

DR. L.D. KAPOOR, Senior Scientific Officer, RRL, Jammu—Elected member of the Linnean Society of Great Britain ; Institute of Biology, London ; and American Society of Pharmacognosy.

DR. D. GANGULY, Senior Scientific Officer and SHRI V.R. PANDOTRA, Junior Scientific Assistant, RRL, Jammu—Members, Indian Phytopathological Society.

SHRI M.C. NIGAM, Junior Scientific Officer, RRL, Jammu—Awarded Ph.D. degree by the Agra University for his thesis : *Studies in Some Indian Essential Oils* .

SHRI B.R. BALIGA, Junior Scientific Officer, CFTRI, Mysore—Awarded Ph.D. degree in Chemistry by the Bombay University for his thesis: *Intestinal Synthesis of B-complex Vitamins as Influenced by Feeding Curds.*

SHRI P.P. KURIEN, Senior Scientific Assistant, CFTRI, Mysore—Awarded the Ph.D. degree by the Agra University for his thesis : *Studies in Mineral and Protein Metabolism.*

SHRI S. M. KHOPKAR, Ex-Senior Research Fellow, CSIR scheme, Separation of Heavy Metals (Jadavpur University, Calcutta) has been awarded the Ph.D. degree by the Jadavpur University for his thesis : *Studies on Heavy Metals.*

DR. G. S. SAHARIA, Reader in Chemistry, University of Delhi and Investigator-in-charge of a CSIR research scheme has been awarded D.Sc. degree by the University for his thesis : *Chemistry of Alicyclic Rings, especially Six-, and Seven-Membered Ring Systems.*

PATENTS & PROCESSES

Patents Sealed

67931 : *A new flavouring substance from waste black pepper and common salt*—T. Nanjappa, R. Rao, C.T. Dwarkanath & D.S. Johar, CFTRI, Mysore.

68401 : *A pneumatic or such other forge hammer adapted for the manufacture of bricks or blocks out of ceramic mixes*—H.V. Bhaskar Rao, H.P. Srinivasamurthy & R.C. Verma, NML, Jamshedpur.

68680 : *Improvements in low temperature carbonisation practice in narrow continuous vertical retorts*—K. Y. Shrikhande, H. C. Chakrabarty, V.V. Rao, N.N. Das Gupta, S.K. Das Gupta, S. Chatterjee & A. Lahiri, CFRI, Jealgora.

68869 : *Improvement in and or relating to the manufacture of benzidine and substituted benzidines*—H.V. Udupa, G.S. Subramanian & K.S. Udupa, CECRI, Karaikudi.

69165 : *A method of making binding materials from blast furnace slag*—L.C. Jain & N.K. Patwardhan, CBRI, Roorkee.

69383 : *Refining of castor oil*—V.P. Harigopal, K.T. Achaya, S.A. Saletore & S.H. Zaheer, RRL, Hyderabad.

69619 : *A mechanical area integrator for the measurement of the cross-sectional area of mine-roadway or the like*—Md. Shamsoozooha, CMRS, Dhanbad.

69697 : *Improvements in or relating to spin pasteurizers for canned acid foods*—J.S. Pruthi, P.K. Ramanathan & Girdhari Lal, CFTRI, Mysore.

70174 : *An improved process for the production of dimeric linoleic acids*—Satish Chander & R.K. Bhatnagar, Shri Ram Institute for Industrial Research, Delhi.

70318 : *Development in or relating to the production of oils and fats having materials for detecting their adulteration*—B.S. Joshi ,NCL, Poona.

Processes Leased Out

The following processes have been leased out for commercial development :

1. Antirust solution, NPL, New Delhi—*Plastipeel Chemical Corporation, Bombay*

2. Hot dip aluminising of ferrous materials (Indian Pat. Nos. 55289, 57938 & 65230), NML, Jamshedpur—*Lalchand Mahadeblal, Howrah.*

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CSIR NEWS

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MEETINGS OF EXECUTIVE COUNCIL & RESEARCH COMMITTEES

Executive Council

NCL, Poona	Feb. 8, 1962	CSIR Secretariat, New Delhi 3.00 p. m. Chairman : Dr. P. Narielwala

Research & Advisory Committees

Chairmen, Research Committees	Jan. 24, 1962	CSIR Secretariat, New Delhi, 10.00 a. m. Chairman : Prof. M.S. Thacker
Chemical Research Committee	Jan. 27, 1962	ATIRA, Ahmedabad, 11.30 a.m. Chairman : Dr. B.C. Guha
Advisory Committee for Rain & Cloud Physics Research Unit	Jan. 31, 1962	Conference Room, NPL, New Delhi, 3.00 p.m. Chairman : Dr. K.R. Ramanathan
Wind Power Sub-Committee	Feb. 3, 1962	Conference Room, NAL, Bangalore, 11.00 a.m. Chairman : Dr. P. Nilakantan
Geological & Mineralogical Research Committee	Feb. 9, 1962	CSIR Secretariat, New Delhi, 10.30 a.m. Chairman : Dr. D.N. Wadia
Metals Research Committee	Feb. 13, 1962	TISCO Board Room, Jamshedpur, 11.00 a.m. Chairman : Shri J.J. Ghandy

Seminar on Scientific & Technical Translation

A seminar on Scientific and Technical Translation will be held under the auspices of the Indian National Scientific Documentation Centre (Insdoc), NPL Buildings, New Delhi from Jan. 30, 1962 to Feb. 1, 1962. Prof. M.S. Thacker, Director-General, Scientific & Industrial Research, will inaugurate the seminar.

The scope of the seminar covers the following subjects :

(1) Organisation of technical translation service in Insdoc and other institutions in India

(2) Problems in technical translation

(3) Facilities for training in foreign languages in India

(4) Activities of the International Federation of Translators

A large number of technical translators, representatives of scientific institutions having translation unit, and heads of departments of foreign languages in universities are expected to participate in the seminar.

Symposium on Ferro-alloy Industry

The four-day symposium on Ferro-alloy Industry in India (*CSIR News*, Vol. 11, No. 17, p. 1) organised by the National Metallurgical Laboratory (NML), Jamshedpur will be inaugurated on Feb. 12, 1962 by Prof. M. S. Thacker, Director-General, Scientific & Industrial Research. Shri J. J. Ghandy, Director-in-charge, Tata Iron and Steel Co. Ltd, and Chairman, Executive Council, NML, will preside.

A large number of scientific and technical contributions received from scientists, metallurgists and technologists from India and abroad for presentation and discussion include the following aspects of ferro-alloy industry : (i) Survey and beneficiation of raw materials, (ii) techniques of production, (iii) basic physico-chemical and thermodynamic principles involved in the production, (iv) advances in production technology, (v) utilization of by-products and overall production economics, (vi) standard specifications for ferro-alloys, and (vii) present status and future of industry.

A pilot smelting submerged electrode Birlefco electric arc furnace (capacity, 1 ton per day) for producing ferro-alloys will be commissioned at the Laboratory conjointly with the inauguration of the symposium.

D.G.'s Press Conference

Prof. M.S. Thacker, Secretary, Ministry of Scientific Research & Cultural Affairs and Director-General, Scientific & Industrial Research held a press conference at the Ashoka Hotel, New Delhi on Jan. 10, 1962.

Reviewing the research and other important activities of CSIR and the progress made during the Second Five-Year Plan period, Prof. Thacker remarked that research in national laboratories had increased almost four-fold in the past six years. He also emphasised the importance of research by industry itself and referred to the appointment of a high level committee to study further incentives besides tax exemption on research expenditure for promotion of scientific research by industry. He added that formation of research working groups ultimately to become a school of research has also been mooted and that some scientists in the country and abroad interested in radio astronomy have already agreed to join such groups.

Laying emphasis on the popularisation of science, he disclosed that a section is being created in CSIR to promote popular writing on scientific subjects.

We regret to record the demise of Dr. S. Parthasarathy, Deputy Director, NPL, New Delhi on Jan. 16, 1962.

LIBRARY

B R I E F S

Seminar on Electrochemistry

The four-day seminar on Electrochemistry organized by the Central Electrochemical Research Institute, Karaikudi, concluded on Dec. 29, 1961. Prof. M.S. Thacker, Director-General, Scientific and Industrial Research, inaugurated the seminar.

Seventy-nine papers received from electrochemists from India and abroad (U.S.A., U.S.S.R., Japan, Hungary, Norway and Netherlands) were presented and discussed in seven technical sessions. These covered different branches of electrochemistry including electrode-kinetics, electrochemical equilibria and electroanalysis, electro-organic and electro-inorganic products, electro-thermics and electro-metallurgy, metal finishing and electro-deposition, corrosion, and batteries.

Amongst the eminent electrochemists from abroad who attended the seminar and took part in the deliberations were: Prof. A. N. Frumkin & Prof. Y.M. Kolotyrkin (U. S. S. R.), Dr. M. J. Allen, California (U. S. A.), Prof. I. P. Anoshchenko, and Prof. G. N. Meshcheryakov, U.S.S.R. (now at the Indian Institute of Technology, Bombay).

Building Digest

The January 1962 issue (No. 3) of the Building Digest brought out by the Central Building Research Institute (CBRI), Roorkee is concerned with *Efflorescence in Brick Work*.

Copies of the Digest are available free from the Director, CBRI, Roorkee.

Dr. Mukerji Presented Squibb Award

Dr. B. Mukerji, Director, Central Drug Research Institute, Lucknow was presented the Dr. Edward R. Squibb Award for 1961 by Dr. Mono Mohan Das, Union Deputy Minister for Scientific Research & Cultural Affairs, at a ceremony held at Puri on Dec. 30, 1961, at the venue of the Fourteenth Indian Pharmaceutical Congress.

The international award consisting of a bronze plaque and a scroll, instituted in 1960 by E. R. Squibb Research Foundation, is presented annually by the Indian Pharmaceutical Association, Bombay to a scientist in the country for outstanding contribution in any branch of pharmacy, biochemistry and public health.

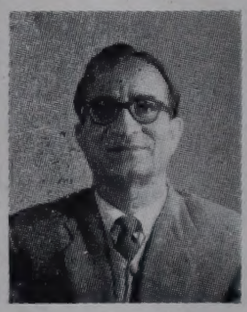
* * *

Dr. B. Mukerji was General President of the Forty-ninth Session of the Indian Science Congress held at Cuttack during Jan. 3-9, 1962. The subject of his address was, *Impact of Life Sciences on Man.*

Dr. M. L. Dhar

Dr. M.L. Dhar has been appointed, on promotion, Deputy Director, Central Drug Research Institute, Lucknow. He took charge of his duties on Jan. 2, 1962.

Dr. Dhar (*b.* 1914, Srinagar, Kashmir) obtained his B.Sc. (Hons.) and M.Sc. degrees in First Division from the Panjab University in 1936 and 1937 respectively. He won the special Alumni Gold Medal and was awarded University scholarship in chemistry and then Birla Research scholarship by the Panjab University. In 1938 he proceeded to U.K. for higher studies under a Kashmir Government Fellowship and worked at the Sir William Ramsay and Ralph Forster Laboratories of the University of London under the guidance of Sir Christopher K. Ingold, F.R.S. He got his Ph.D. degree from the London University in 1940.



On his return to India, Dr. Dhar worked at the Drug Research Laboratory (now Regional Research Laboratory) Jammu & Kashmir (1940) as Chemist and Chief Chemist. In 1950, he joined the Central Drug Research Institute, Lucknow, as a Senior Scientific Officer and after six months he was promoted as Assistant Director, Division of Medicinal Chemistry. During 1956-57, he worked as a Research Associate in the Laboratories of Prof. Linus Pauling, N.L. at the California Institute of Technology, Pasadena (U.S.A.) under a Rockefeller Fellowship.

Dr. Dhar has been conducting and guiding research in the fields of indigenous medicinal plants and chemotherapy of bacterial, protozoal and viral infections for the last twenty-five years and has published about eighty research papers and many review articles. He has served as an expert on many technical committees of the Central and State Governments.

Dr. Dhar is a Fellow of the Royal Institute of Chemistry, the Institution of Chemists (India), the National Academy of Sciences and the National Institute of Sciences of India.

CMRS, Dhanbad

Prof. F. Narter, Vice-Chancellor, Technical University of Istanbul, Turkey and Prof. G.I. Mankovsky, Corresponding Member, U.S.S.R. Academy of Sciences and Vice-Director, Mining Research Institute, Moscow visited the Central Mining Research Station, Dhanbad on Jan. 11 and Jan. 12, 1962 respectively.

Dr. K.N. Sinha, Officer on Special Duty, CMRS, took them round the Station.

NAL, Bangalore

The National Aeronautical Laboratory, Bangalore is participating in the National Agricultural Fair which opened at Madras on June 14, 1962. Working of the WP-2 type windmill, designed by the Institute, is being demonstrated at the Fair.

Research Papers

Action of manganese dioxide on carbohydrate: Part I-Some disaccharides—J.L. Bose, A.B. Foster, N. Salim, M. Stacey & J.M. Webber, NCL, Poona. *Tetrahedron*, **14** (1961), 201-07.

Differential thermal analysis in the study of phase change in the dehydration of disodium hydrogen phosphate hydrates—W.K. Behl & Harish C. Gaur, University of Delhi, Delhi. *Z. phys. Chem.*, **29** (1961), 289-92.

Bricks—L.C. Jain, CBRI, Roorkee. *Indian Build.*, **9(11)** (1961), 22-26.

RESEARCH IN PROGRESS

National Laboratories

CBRI, ROORKEE

Sound Absorption Studies—A Reverberation chamber for full scale tests on sound absorbing materials has been constructed. The chamber (*c.*120 cu.m) contains hard convex diffusing surfaces on walls and ceiling, and thirty-six randomly oriented plywood diffusers. The mid-frequency reverberation time of the empty chamber is of the order of 6 seconds. Extensive experiments are being carried out with a standard acoustical material received from West Germany for assessing the diffusion and performance of the chamber using testing methods recommended by International Standards Organisation — C. G. BALACHANDRAN.

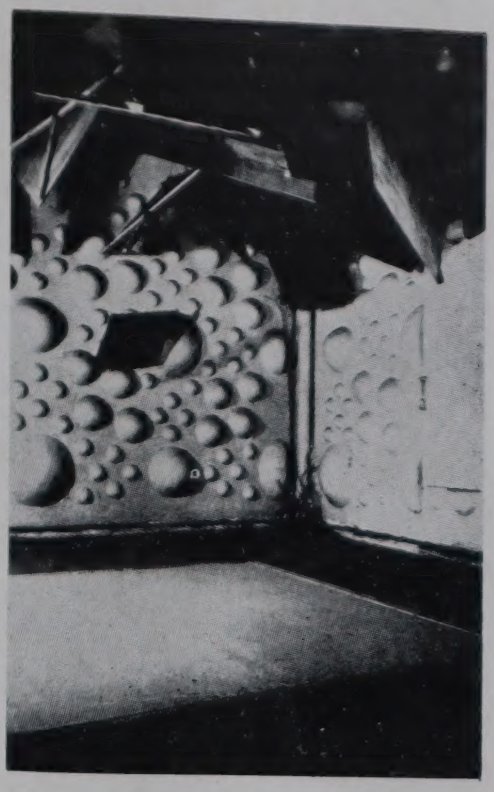
CFRI, JEALGORA

Vanadium Iron Oxide Catalysts—Silica gel based vanadium-iron oxide catalysts prepared at 500°, 600°, 700° and 800° have been examined by X-ray method for finding out a suitable catalyst for the oxidation of anthracene to anthraquinone. The catalyst prepared at 500° is over-oxiding and unstable for the oxidation reaction but the catalyst prepared at 800°, and whose X-ray pattern indicates the presence of α-cristobalite is satisfactory for the oxidation of anthracene. Hence, the study shows that the greater stability of the cristobalite structures during oxidation is one of the important factors in the structure of a catalyst suitable for the oxidation of anthracene to anthraquinone—R.S. DUBEY & SULTANA Z. ALI.

Determination of Phosphorus in Coal and Coke Ash—A calorimetric method for rapid determination of phosphorus in coal and coke ash has been developed. Using this method, 15-16 determinations can be made in a day. The process involves digestion of ash with nitric, sulphuric and perchloric acids and does not involve the use of platinum—N. BISWAS, S.N. MUKHERJEE, P.B. DUTTA & A. LAHIRI.

CRRI, NEW DELHI

Drivers' Clinic—A Drivers' Clinic for conducting neuro-physical tests on drivers has been started on a modest scale at the State Motor Transport Controller's Office, Delhi. The object of the Clinic is to detect drivers' weakness and inform them of it for their guidance. Advice is also given for deficiencies which can be made up by treatment.



CBRI, ROORKEE—Interior view of the reverberation chamber

The Clinic conducts tests for the following defects: (i) Visual acuity, (ii) night vision, (iii) glare recovery, (iv) side vision, (v) simple reaction, (vi) complex reaction, (vii) distance judgment, (viii) speed judgment, (ix) colour blindness, (x) traffic situations, and (xi) knowledge for safe behaviour. It is also proposed to conduct psychological and attitude tests.

CMRS, DHANBAD

Area Meter—An instrument which can directly indicate area and record the shape of cross-section of mine roadways has been developed. The instrument consists of a (i) flexible tracing cord, (ii) spring loaded drum, (iii) captans attached to drum, (iv) a carriage with a marking point and a measuring wheel, and (v) circular supporting board.

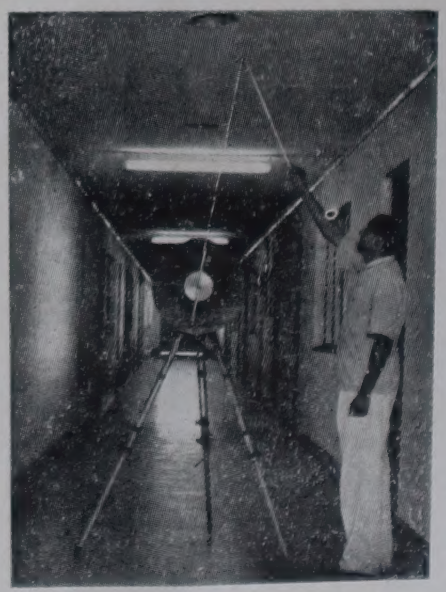
The instrument is mounted on the board and can be rotated freely about the supporting point. It is taken to site and is set to the plan of the area to be measured.

Sponsored Research

Thermodynamic Properties of Mixtures—A statistical mechanical theory of associated mixtures involving the formation of AB_2 complexes in solution has been developed. The results are in general agreement with the experimental data.

The heats of fusion of naphthalene-phenanthrene, benzophenone-diphenylamine and urea-phenol complexes have been measured and entropies of fusion determined. The experimentally observed heat of fusion of freshly precipitated eutectic was about 500 cal. higher than the additive value.

Electrical effects of electrolytes during crystallisation and dissolution have been investigated. A potential difference (P. D.) of the order of hundreds of millivolts is produced when the precipitation or dissolution of electrolytes takes place. Techniques for detecting and measuring the potentials have been developed. The potentials have been measured for a large number of electrolytes at various temperatures. The results show that the rate of dissolution or the rate of precipitation considerably affects the magnitude of observable maximum value of P.D. In general, the electrode at which the crystallisation or dissolution takes place is always positive. A theory based on the regeneration of electrical double layer, supposed to be existing at the solid-liquid interface, heas been dev-



CMRS, DHANBAD—Area meter being used for measuring the area of cross section of corridor of the main building

loped which accounts satisfactorily for all the observed facts. The potentialities of the applications of the phenomenon in meteorology, biochemistry and metallurgy have been examined—R.P. RASTOGI, R.C. SRIVASTAVA, R. K. DAS, R. L. BLOKHRA & P. S. BASSI, Department of Chemistry, Panjab University, Chandigarh.

PERSONAL

Appointments

SHRI Y.D. MISRA—Senior Scientific Officer: Grade I, CMRS, Dhanbad (Dec. 28, 1961).

SHRI S.K. BAGCHI—Curator: Grade I, BITM, Calcutta (Jan. 2, 1962).

SHRI S. SESHAN—Junior Scientific Officer, CMRS, Dhanbad (Dec. 2, 1961).

SHRI K.S. PANDIR—Junior Technical Officer, BITM, Calcutta (Dec. 23, 1961).

DR. Y.V. SOMAYAJULU—Pool Officer, NPL, New Delhi (Dec. 9, 1961).

DR. P. RAY CHAUDHARY—Pool Officer, NCL, Poona (Jan. 1, 1962).

Promotions

SHRI T.D. BANSAL—Senior Scientific Officer: Grade II, NPL, New Delhi (Nov. 15, 1961).

DR. S.N. GHATAK,—Senior Scientific Officer: Grade II, CDRI, Lucknow (Dec. 19, 1961).

SARVASHRI M.S. KOTHARI & M.V. KUNTE—Senior Scientific Officers: Grade II, NCL, Poona (Dec. 30, 1961).

SHRI N.K. BUZRUK—Junior Scientific Officer, NCL, Poona (Dec. 30, 1961).

SHRI MADAN MOHAN—Electrical Engineer, NPL, New Delhi (Nov. 15, 1961).

SHRI GURBUX SINGH—Project Engineer, NPL, New Delhi (Dec. 7, 1961).

SHRI R. SUBRAMANIAN—Curator, NPL, New Delhi (Nov. 15, 1961).

SHRI S.C. SHARMA—Senior Librarian, NPL, New Delhi (Nov. 17, 1961).

Nominations

DR. J.W. WHITAKER, Director, IIP—Member, Technical Committee on Energy of the Natural Resources Committee, Planning Commission.

DR. S. HUSAIN ZAHEER, Director, RRL, Hyderabad and DR. B. MUKERJI, Director, CDRI, Lucknow—Members, Technical Committee on Minerals of the Natural Resources Committee, Planning Commission.

DR. K.N. SINHA, Officer on Special Duty, CMRS, Dhanbad—Member, Advisory Committee for Department of Mining Engineering, Indian Institute of Technology, Kharagpur.

DR. K.D. SHARMA, Deputy Director, CGCRI, Calcutta—Member, Development Council for Glass and Ceramics, Ministry of Commerce and Industry.

MAJ. N.V.R. IYENGAR, Senior Scientific Officer, CFTRI, Mysore—Member, Research Committee on Packaging and Transportation Problems, Railway Board.

The following have been nominated members of the various committees of the Indian Standards Institution:

DR. K.N. SINHA, Officer on Special Duty, CMRS, Dhanbad—*Mine Tubs, Mine Cars and Tipplers Sectional Committee.*

SHRI P.I.A. NARAYANAN, Officer in charge (Ore Dressing), NML, Jamshedpur—*Ores and Raw Materials Sectional Committee.*

SHRI R.M. KRISHNAN, Asst. Director, NML, Jamshedpur—*Foundry Sectional Committee* and *Panel for Pig Iron.*

SHRI M.L. GUPTA, Senior Scientific Officer, NML, Jamshedpur—*Steel Forgings Sectional Committee* and *Wrought Steel Products Sectional Committee.*

SHRI CHINTAMANI SHARMA, P.A. (Tech.) to Director, NML, Jamshedpur—*Copper and Copper Alloys Sectional Committee.*

Honours & Awards

SHRI T.B S. PRAKASAM, Junior Scientific Officer, CPHERI, Nagpur, has been awarded the Institution of Engineers (India) Prize for 1959-60 along with Sarvashri N. Mazumdar & M.V. Suryaprakasam, co-authors of the paper, *A critical study of septic tank performance in rural areas* published in the journal of the Institution (Vol. 40, No. 12).

SHRI MOHESWAR SHARMA, Senior Research Fellow, CSIR scheme, Synthetic studies in diterpenoid acids (Indian Association for the Cultivation of Science, Calcutta) has been awarded D. Phil. degree by the Calcutta University for his thesis, *Synthesis of Alicyclic Compounds Related to Natural Products.*

PATENTS & PROCESSES

Patents Filed

INDIA

79882: *Improvements in or relating to the processing of textiles for imparting abrasion resistance and wash and wear characteristics*—R.M. Desai, N.B. Sattur, J. Varghese & J.C. Patel, Shri Ram Institute for Industrial Research, New Delhi.

PAKISTAN

979/61: *Improvements in or relating to the production of* alpha-*halotoluenes*—S.H. Zaheer, B. Singh, B. Bhushan, S.I. Ahmed, I.K. Kacker, V. Krishnamoorthy & M.Z. Ahmed, RRL, Hyderabad.

Patents Accepted

72264: *Metal detector*—C. S. Rangan & P.N. Taneja, NPL, New Delhi.

72408: *A process for separation and isolation of aromatic principles of* Abelmoschus moschatus *seeds*—G. Misra, V.N. Sharma, C. Mitra & K.N. Kaul, NBG, Lucknow.

73067: *A process for the use of indigenous asbestos in the manufacture of asbetos-cement sheets*—N. Biswas, S.N. Mukherjee, S.K. Majumder, N.G. Banerjee, P.B. Dutta & A. Lahiri, CFRI, Jealgora.

Patent Sealed

GERMANY

18983 IV b/120: *A process for the preparation of dihydrojasmone*—J.H. Amin & S.C. Bhattacharyya, NCL, Poona.

Processes Leased Out

The following processes have been leased out for commercial exploitation:

1. Development of polyesters suitable for moulding, casting, laminates, adhesives, etc. (Indian Pat. Nos. 66886, 69369 & 69250), Shri Ram Institute for Industrial Research, Delhi—M/s *Rawji Amarsi, Bombay.*

2. Hot dip aluminising of ferrous materials (Indian Pat. Nos. 55289, 57938 & 65230), NML, Jamshedpur—M/s *Nandaram Ghasiram (1720) P. Ltd., Kanpur*; and M/s *Om Prakash and Company, Calcutta.*

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CSIR NEWS

VOL. 12 NEW DELHI—FEB. 12, 1962 : MAGHA 23, 1883 No. 3

MYSORE

MEETINGS OF EXECUTIVE COUNCILS & RESEARCH COMMITTEES

Executive Councils

CRRI, New Delhi	Feb. 16, 1962	CRRI, New Delhi, 10.00 a.m. Chairman : Prof. M.S. Thacker
CIMPO, New Delhi	Feb. 17, 1962	CSIR Secretariat, New Delhi, 10.30 a.m. Chairman : Shri P.A. Narielwala

Research Committees

Biological Research Committee	Feb. 14, 1962	CSIR Secretariat, New Delhi, 10.00 a.m. Chairman : Prof. P. Maheshwari
Physical Research Committee	Feb. 19 & 20, 1962	Saha Institute of Nuclear Physics, Calcutta; 6.00 p.m. & 2.00 p.m. respectively Chairman : Dr. Vikram A. Sarabhai
Wind Power Sub-Committee	Feb. 24, 1962	Conference Room, NAL, Bangalore. 11.00 a.m. Chairman : Dr. P. Nilakantan

Prof. Thacker to Preside Over UN Conference on Science and Technology

Prof. M.S. Thacker, Secretary, Ministry of Scientific Research and Cultural Affairs and Director-General, Scientific & Industrial Research, has accepted the invitation of the U.N. Secretary-General for presiding over the UN Conference on 'Application of Science and Technology for the Benefit of the less developed Areas of the World' to be held at Geneva in 1963.

* * *

Prof. M.S. Thacker has been re-elected a Vice-President of the *Indian Science News Association* for 1961-62.

* * *

DR. D.S. KOTHARI, Chairman, University Grants Commission and Member, Governing Body, CSIR, has been awarded *Padma Bhushan* by the President of India on the Republic Day (Jan. 26, 1962).

* * *

DR. B. MUKERJI, Director, CDRI, Lucknow has been awarded *Padma Shri* by the President of India on the Republic Day, for his contribution in the fields of pharmacology, toxicology, biological standards and pharmacotherapeutics of indigenous drugs.

IASLIC Meet at CFRI

The Central Fuel Research Institute, Jealgora will be the venue of the Fourth Conference of the Indian Association of Special Libraries and Information Centres to be held during Feb. 14-17, 1962, under the presidentship of Dr. J. W. Whitaker, Director, IIP. Shri G.S. Jabbi, Chief Inspector of Mines, Govt. of India, will inaugurate the conference and Prof. M.S. Thacker, Director-General, Scientific & Industrial Research, will be the Chief Guest.

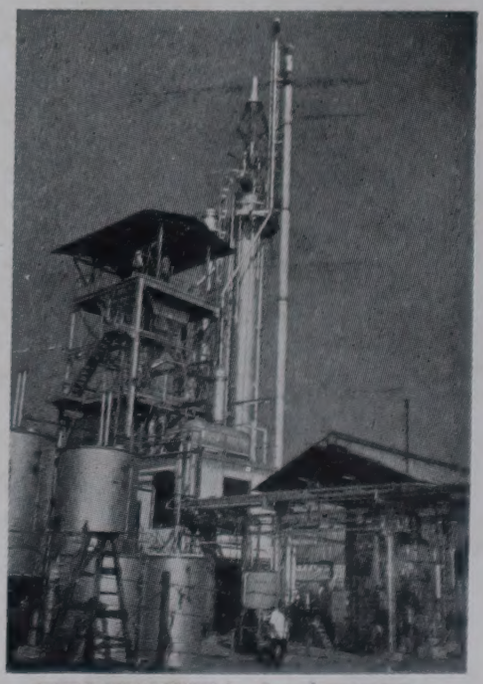
On invitation, the Publications & Information Directorate, CSIR is contributing informative digests of technological developments in India for publication in *Technological Digests* published by the Organisation for Economic Co-operation and Development (OECD), Paris. Such invitations have been extended so far to only four other non-OECD countries.

Manufacture of Football Leather

The process for the manufacture of 'Chrome Football Leather' will be demonstrated at the Central Leather Research Institute, Madras to tanners from Feb. 19 to March 13, 1962.

Lurgi Pressure Gasification Plant

The Central Fuel Research Institute, Jealgora has just installed a pilot plant (Lurgi-Spül gas type) for conversion of coal into gas. The plant (capacity, 0.8 ton per hour) obtained under TCM Aid Programme (cost including ancillary equipment, Rs. 35 lakhs) can gasify coal for making town gas and synthetic gas suitable for production of fertilizers, oils and chemicals. The plant will be employed for studying gasification characteristics of low-grade non-caking coals and by-product fuels from the coal washeries.



CFRI JEALGORA—Lurgi pressure gasification pilot plant

BRIEFS

Seminar on Vegetable Tannins

The three-day seminar on' Vegetable Tannins' organised by the Central Leather Research Institute, Madras concluded on Jan. 23, 1962. Prof. M.S. Thacker, Director-General, Scientific & Industrial Research inaugurated the seminar and Shri M. Bhaktavatsalam, Minister for Home and Agriculture, Madras State presided over the inaugural function.

Seventeen research papers received from scientists in India and abroad (U.K., U.S.S.R., West Germany, Sweden, Hungary and South Africa) were presented and discussed under the following technical sessions : Chemistry and Biogenesis of Tannins (Chairmen : Prof. O. Th. Schmidt of the Heidelberg University and Visiting Professor, CLRI, and Prof. T.R. Govindachari, Presidency College, Madras) and Chemistry of Vegetable Tannage (Chairman: Dr. K. Wolf, Unesco Expert working at CLRI).

Seminar on Scientific & Technical Translation

A three-day seminar on 'Scientific & Technical Translation' organised by the Indian National Scientific Documentation Centre (Insdoc), New Delhi was inaugurated on Jan. 30, 1962 by Prof. M.S. Thacker, Director-General, Scientific & Industrial Research. About 60 delegates consisting of translators working on the Insdoc panel, representatives from other scientific institutions in which translation units have been functioning, delegates from some of the national laboratories and heads of departments of foreign languages from a few universities participated in the seminar.

Twenty three papers covering a wide variety of topics were presented and discussed at the seminar under three technical sessions. The First Session was devoted to the consideration of the existing translation services at various scientific and technical institutions in India. Problems encountered in technical translation with particular reference to Russian, German, French, Japanese and Chinese were discussed in the Second Session. Teaching of foreign languages in India which also embraced the question of technical translators was discussed in the Third Session. The important papers presented at the seminar are : (i) Indian Scientific Terminology; (ii) Automation in Linguistic Translation; and (iii) The Organisation of Translators.

Conference of Textile Associations

The third annual Technological Conference of the three textile research associations (ATIRA, Ahmedabad; BTRA, Bombay; and SITRA, Coimbatore) organised by the Bombay Textile Research Association (BTRA), Bombay was held during Jan. 22-24, 1962. Prof. M.S. Thacker. Director-General, Scientific & Industrial Research inaugurated the Conference.

Twenty five research papers received from ten institutions and presented and discussed in 6 technical sessions relate to the following subjects: fibre science, spinning, preparatory & weaving, chemistry and chemical processing.

Petroleum Technology Course

A one-week introductory course in Petroleum Technology for the non-technical members of staff working in various Government and non-Government departments, organised by the Indian Institute of Petroleum at the Bureau of Petroleum Information, Parliament Street, New Delhi concluded on Jan. 20, 1962. The course was attended by 35 persons representing the offices of the Directorate General of Supplies and Disposals, Central Board of Revenue, Ministry of Defence and the Department of Mines and Fuel, Oil & Natural Gas Commission, and the Indian Institute of Petroleum.

Research as a Career

This 16-page booklet, just issued, is addressed to science and engineering graduates and provides information on opportunities and allurements offered by a career in research. Facilities available in the national laboratories of the CSIR and elsewhere for research in various disciplines of science and technology are indicated and information is given on fellowships administered by CSIR, scales of pay, service conditions and prospects of advancements offered by a research career.

Organization of Information

Mr. A.J. Richards of DSIR, London, has presented to the Publications & Information Directorate, CSIR. 12 colour slides on some aspects of the organization of information activities at the Department of Scientific & Industrial Research, London. These slides are available for loan to interested organizations.

Dr. K. R. Ramanathan, Director, Physical Research Laboratory, Ahmedabad and Chairman, Rain & Cloud Physics Research Unit and Radio Research Committee of CSIR receiving World Meteorological Organization Prize for 1961 from Mr. D.V. Davies, Secretary-General, WMO at Vigyan Bhavan, New Delhi on Jan. 29, 1962

RESEARCH IN PROGRESS

National Laboratories

CLRI, MADRAS

Microbalance for Weighing Fibres—An electrical microbalance for weighing single fibres (weight range, 10 mg.-2 mg.) quickly and accurately has been developed. The balance consists of three parts: (i) the balance proper (B) which is an ammeter with 500 μA full-scale deflection, (ii) the current indicating milliameter (I) with full-scale deflection of one milliampere with variable shunt, current controlling resistance (C), standardising resistance (S), adjusting knobs (Sh) and a dry cell, all mounted on a panel, and (iii) a travelling microscope.

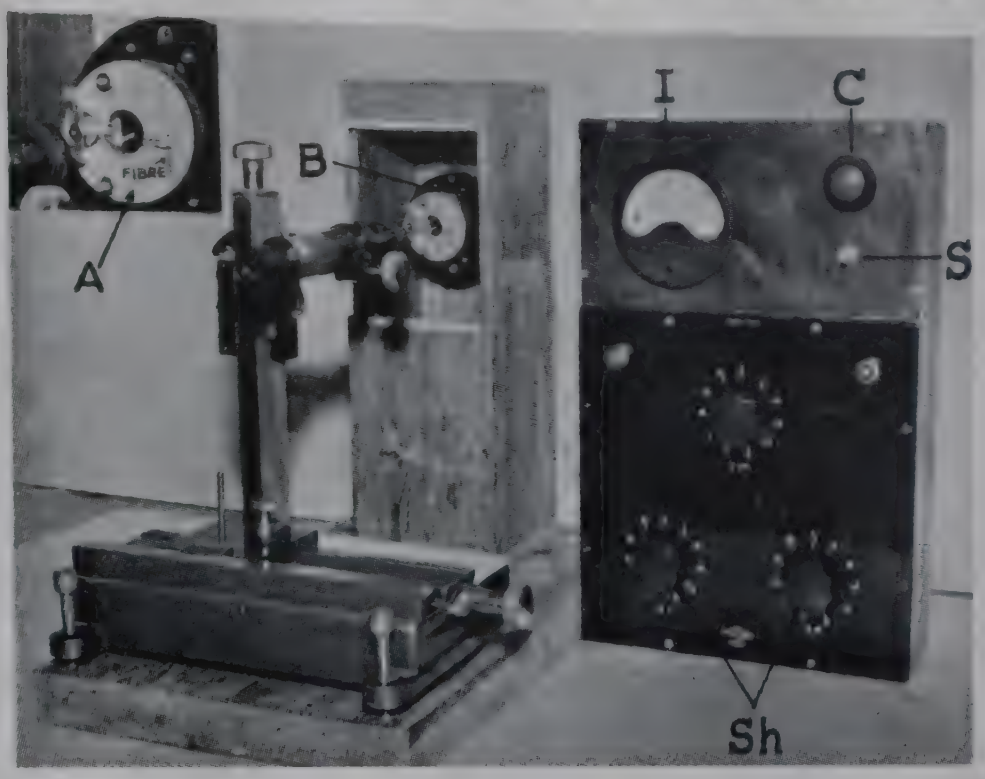
The working of the balance is based on the principle that the deflection of a pointer caused by placing a weight on it can be nullified by passing a current of suitable magnitude and direction through the ammeter of which the pointer forms a part.

The balance can be modified to suit other ranges by using suitable balance meter and indicating meter.

Sterilization of Hide and Leather—A process for sterilization of raw hide, skin and leather bacteriologically, without significantly altering the structural characteristics, has been developed. The process essentially consists in fumigating the hide, skin or leather with ethylene oxide in a closed container at room temperature for 12 to 14 hr. The optimum amount of ethylene oxide required for sterilization is 0.50-0. 75 ml per litre of the volume of the container in case of hide and skin and 0. 25 ml in case of leather. Using the process, absolute sterility is obtained in 80-90 per cent of the treated samples; the samples are free from residual effect of ethylene oxide which affects bacteriological studies.

RRL, JAMMU

Jammu-Japanese Mint — Tetraploid of Japanese mint (*CSIR News*, Vol. 10, No. 12, p. 3) is being grown in the Laboratory gardens. They are more robust, have larger leaves and their seed-setting is more satisfactory than that of the Japanese mint. However, they show considerable variation in vegetative characters, colour of flowers and oil content. But the yield of oil is higher (3.5-5 per cent) than that of the Japanese mint (3-4 per cent).



CLRI, MADRAS—Electrical microbalance for weighing single fibre

C.F.R.I.'s Contribution to Coal Washing in India

Systematic survey of the cleaning characteristics of Indian coals and extensive researches on the various aspects of coal washing undertaken by the Central Fuel Research Institute, Jealgora and its Coal Survey Stations have been reviewed in an article published under the above title in *FRI News* (Vol. 10, No. 1 & 2, pp. 10-25).

The following salient features of the work are presented : (i) theoretical aspects, (ii) studies on semi-pilot plant and pilot plant conditions, (iii) froth flotation as a means of up-grading high-ash coal fines and problems encountered, such as drainage and dewatering of washed and/or screened products during wet washing, dense media washing, recovery of coal fines from washery effluent.

Investigations carried out on behalf of the central washery at Kargali and washeries at Bhojudih and Patherdih for supply of coal to the steel works and for the proposed washery at Anuppur on behalf of the Railways and for the establishment of the Nowrozabad washery by the Associated Cement Co. of Bombay have been included.

Washability tests and investigations on coal from Jatraj seam, (Korba coalfield) undertaken at the instance of the Ministry of Steel, Mines & Fuel and National Coal Development Corporation Ltd. and those undertaken on behalf of various private collieries are described. Mention has been made of important technical aid rendered to Government organisations and industry on problems of coal washing.

Research Papers

A statistical study of pilot plant cooking tests results—N.N. Chatterjee, D. Sen Gupta, P. Chakravartty, N.N. Das Gupta & A. Ghosal, CFRI, Jealgora. *Coke & Gas*, **23** (1961), 517-20.

Intensity and height variation of the 5577 emission layer at Poona—M.W. Chiplonkar, P.V. Kulkarni & V.V. Agashe, University of Poona, *Bull. Astron. inst. Czechoslovakia*, **12** (1961), 18-20.

Sensitivity of VG-IA ionization gauge calculated from the probability of ionization of gases—S.N. Ghosh & B.N. Srivastava, University of Allahabad. *Canad. J. Phys.*, **39** (1961), 273-79.

Prof O. Th. Schmidt

Prof. Otto Theodore Schmidt, Professor and Dean of Science Department, Heidelberg University, Heidelberg, who arrived in India as Visiting Professor for a period of six weeks at the invitation of the CSIR joined the Central Leather Research Institute, Madras on Dec. 29, 1961.

Prof. Schmidt (*b.* Dec. 24, 1898, Germany) had his education at Karlsruhe and Munich and was appointed Assistant Professor in Heidelberg University when working with Prof. K. Freudenberg (1931). He was promoted to Associate Professorship in 1939 and became Professor in 1948.

Prof. Schmidt has carried out extensive studies in the fields of chemistry of sugars, carbohydrates and natural tannins. He is well known for his researches on the chemistry of ellagitannis, particularly myrobalan (available in abundance in India).

Dr. J. Tuzo Wilson

Dr. J. Tuzo Wilson, Director, Institute of Earth Sciences, University of Toronto and Member, National Research Council of Canada, who has come to India at the invitation of the Council of Scientific & Industrial Research, visited the National Aeronautical Laboratory, Bangalore on Jan. 22, 1962.

PERSONAL

Appointments

DR. KANWAL S. BALAIN—Senior Scientific Officer : Grade I, CEERI, Pilani (Jan. 1, 1962).

SHRI R.K. BASU—Senior Technical Officer (Electronics), CDRI, Lucknow (Dec. 29, 1961).

DR. A.K. SARKAR—Pool Officer, CDRI, Lucknow (Jan. 15, 1962).

Deputations

SHRI V.K. VENKATESAN, Junior Scientific Officer, CECRI, Karaikudi —*U. S. S. R.* : Training in Electrochemistry particularly kinetics of electrode processes, under a U.S.S.R. Government Scholarship for 28 months (Dec. 25, 1961).

SHRI K. BALAKRISHNAN, Senior Scientific Assistant, CECRI, Karaikudi—*West Germany* : Training in electrochemistry under a Federal Republic of Germany Scholarship for one year (Dec. 23, 1961).

Nominations

DR. J.W. WHITAKER, Director, IIP—Member, Board of Studies in Chemical Engineering and Mining & Metallurgy, Banaras Hindu University.

DR. B. MUKERJI, Director, CDRI, Lucknow—Member, Sub-committee to formulate a coordinated scheme for research on antibiotics at well-suited institutes/universities, Indian Council of Agricultural Research.

Honours & Awards

DR. I.C. CHOPRA, Deputy Director, RRL, Jammu—Elected, Member of the Indian Academy of Sciences.

DR. Y.V.G. ACHARYA, Assistant Director, NAL, Bangalore—Re-elected a member of the Editorial Committee of the Society of Theoretical and Applied Mechanics.

SHRI S. GUPTA, Senior Scientific Officer, CFRI, Jealgora—Elected a Member of the Institute of Fuel, U. K.

SHRI S.C. BISWAS, Senior Scientific Assistant, CFRI, Jealgora—Elected an Associate Member of the Institute of Fuel, U.K.

SHRI R. GOPALACHARI, Senior Scientific Officer, CDRI, Lucknow—Ph. D. degree by the Banaras Hindu University for his thesis : *Chemotherapy of Amoebiasis and Chemistry of Plant Products.*

SHRI PREM SAGAR, Junior Scientific Officer, CDRI, Lucknow—Ph.D. degree by the Lucknow University for his thesis : *Biochemical Studies in* Vibrio cholerae.

SHRI SHIV BALI MISRA, Senior Scientific Assistant, CDRI, Lucknow—Ph.D. degree by the Lucknow University for his thesis : *Biochemistry of* Vibrio cholerae *Antigens.*

SHRI OM PRAKASH MADAN, Senior Scientific Assistant, CDRI, Lucknow—Ph.D. degree by the Lucknow University for his thesis : *Search for New Amoebicides.*

SHRI SURENDRA NATH SINHA, Senior Research Fellow, CSIR scheme on Studies in Inorganic Complexes (University of Allahabad, Allahabad)—D. Phil. degree by the University of Allahabad for his thesis : *Application of Some Reactions in Chemical Analysis.*

SHRI ROSHAN LAL SETH, Junior Research Fellow, CSIR Scheme on Physico-chemical Studies in Complex Formation (University of Allahabad, Allahabad)—D. Phil. degree by the University of Allahabad for his thesis : *Complex Formation.*

Patents Filed

PAKISTAN 978/61 : *Improvement in or relating to the manufacture of phenylacetic acid*—S.H. Zaheer, B. Singh, B. Bhushan, S.I. Ahmed, I.K. Kacker, V. Krishnamoorthy & M.Z. Ahmed, RRL, Hyderabad.

Patents Accepted

71063 : *Production of bacterial protease by submerged culture*—Inderjit Babbar, V.K. Powar & V. Jagannathan, NCL, Poona.

71092 : *A process for the manufacture of citric acid*—M. R. R. Raghavendro Rao & J. R. Vakil, NCL, Poona.

71944: *Improvements in or relating to the manufacture of phenylacetic acid*—S. H. Zaheer, B. Bhushan, S.I. Ahmed, I.K. Kacker, V. Krishnamoorthy & M.Z. Ahmed, RRL, Hyderabad.

72425 : *A direct process for preparing the chlorides of barium and strontium from their sulphate minerals*—S.H. Iqbal, J. Lobo & J. Gupta, NCI, Poona.

Processes Leased Out

The following processes have been leased out for commercial development,

1. Polystyrene base cation exchange resins (Indian Pat. No. 65976) NCL, Poona—*Industrial & Agricultural Co. (Bombay) Private Ltd.*, Bombay and *Tulsi Industries*, Poona.

2. Hot dip aluminising of ferrous materials (Indian Pat. Nos. 55289, 57938 & 65230)—NML, Jamshedpur, *Kamani Engineering Corporation Ltd* Bombay.

3. Mica insulating bricks (Indian Pat. No. 48667). CGCRI, Calcutta—*Bhupal Mining Works*, Rajasthan.

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R. N. 4212/5

CSIR NEWS

VOL. 12 NEW DELHI—FEB. 26, 1962 : PHALGUNA 7, 1883 No. 4

MEETING

A meeting of the Advisory Committee of the Central Scientific Instruments Organization (CSIO) will be held on March 5, 1962 at CSIO office, Chandigarh at 10.30 a.m. Shri G. Pande, Vice-Chancellor, Roorkee University, will preside.

New Building for IIBEM : Foundation Stone Laid

The foundation stone of the new building for the Indian Institute for Biochemistry and Experimental Medicine, Calcutta was laid by Prof. Humayun Kabir, Minister for Scientific Research & Cultural Affairs on Feb. 10, 1962. The function which was attended by a select gathering was presided over by Dr B.C. Roy, Chief Minister of West Bengal.

In the course of his welcome address, Prof. M.S. Thacker, Director-General, Scientific & Industrial Research, spoke of the devotion and leadership of the Director, Dr J.C. Ray, which had enabled the Institute to grow to its present position. Dr Ray made a brief survey of the history of the Institute and thanked the Government of West Bengal for the generous gift of Rs. 1.25 lakhs for the purchase of the site.

PERSONAL

Appointments

SHRI JOSEPH GEORGE—Senior Scientific Officer : Grade I, CBRI, Roorkee (Feb. 19, 1962).

SHRI K.R. SIVARAMAN—Senior Scientific Officer : Grade II, NAL, Bangalore (Jan. 31, 1962).

SHRI B.S. VERMA—Special Officer, Publications Directorate, CSIR, New Delhi (Feb. 1, 1962).

DRS P. RAY CHOUDHURY & A. SEN—Pool Officers, NCL, Poona (Jan. 1, 1962 & Jan. 15, 1962 respectively).

SARVASHRI P.L. AHUJA, G.D. SANI & K.P. MUKHERJEE—Junior Scientific Officers, NML, Jamshedpur (Jan. 16, 1962).

Promotions

SHRI R.A. PADMANABHAN—Senior Scientific Officer : Grade II, CMERI, Durgapur (Jan. 10, 1962).

SHRI B. N. KAUL NAZIR—Documentation Officer, RRL, Jammu (Feb. 1, 1962).

DR N.R. SANJANA & SHRI C.I. JOSE—Junior Scientific Officers, NCL Poona (Jan. 31, 1962).

SHRI OM PRAKASH, Assistant, CSIR Secretariat, New Delhi—Section Officer, N C L, Poona (Aug. 16, 1961).

SHRI P.R. NATARAJAN, Assistant, CECRI, Karaikudi—Section Officer, NCL, Poona (Oct. 11, 1961).

SHRI R. SAMPATH, Assistant, CLRI, Madras—Section Officer, CPHERI, Nagpur (Jan. 12, 1962).

Deputations

SHRI S.M.K. CHETTY, Senior Scientific Officer : Grade I, CBRI, Roorkee—Returned to India after completion of requirements for Ph. D. at the University of Southampton, U.K.

SHRI V.K. VAISH, Senior Scientific Officer, CGCRI, Calcutta—Returned from U.K. after completion of his training in Operation of Moulding, Paddling and Pressing Optical Glass Blanks and Plates in U.K. Optical Co. Ltd. (Feb. 5, 1962).

Nominations

The following have been nominated members of the various committees of the Indian Standards Institution :

DR S. HUSAIN ZAHEER, Director RRL, Hyderabad—*Soft-Coke Sub-Committee.*

SHRI R.S. MEHTA, Director, CPHERI, Nagpur—*Water Supply & Sanitation Sectional Committee; Building Materials & Components Sampling Sectional Committee* ; and *Fluid Flow Measurement in Closed Conduits Sub-Committee.*

SHRI R.M. KRISHNAN, Assistant Director, NML, Jamshedpur—*Cast Iron Sectional Committee.*

(*Contd. on page 4, col. 1*)

IIBEM, CALCUTTA—Dr. J.C. Ray, Director, speaking during the Foundation Stone laying Ceremony

BRIEFS

Carbohydrates, Cellulose & Cellulose Industries Symposium

A symposium on 'Carbohydrates, Cellulose and Cellulose Industries' was held at the Ahmedabad Textile Industry's Research Association (ATIRA), Ahmedabad during Jan. 29-30, 1962, under the auspices of the Chemical Research Committee (CRC) of CSIR. The symposium was inaugurated by Dr. Jivraj Mehta, Chief Minister, Gujarat. Prof. B.C. Guha, Chairman, CRC, welcomed the chief guest and participants. Dr T.S. Subramanian, Director, ATIRA and Convener of the symposium, proposed a vote of thanks.

Thirty two papers were submitted (29 actually presented) and discussed in the following five sections: Carbohydrates, Chemistry of Cellulose, Biochemistry, Cellulose Structure (by physical methods) and Paper and Rayon Pulp.

* * *

The proceeding of the symposium on 'Functional Efficiency of Buildings' held at the Central Building Research Institute, Roorkee during Nov. 13-14, 1961 (*CSIR News*, Vol. 11, No. 23, p. 2) are being published in *Indian Construction News*. The first part dealing with 'Thermal Comfort in Buildings' has been published in the December 1961 issue (Vol. 10, No. 12) of the journal. This part (pp. 21-60, price Rs Four) can be had direct from the publishers.

Mr Bassler at BITM

Mr. Karl Bassler, Architect and Director of the Deutsches Museum, Munich, who has been assigned by the Unesco to advise the Council of Scientific & Industrial Research in designing & equipping of technological museums, arrived in India on Jan. 10, 1962. He is presently at the Birla Industrial & Technological Museum, Calcutta, where he is advising the Museum to design a new multi-storeyed building.

SASMIRA, Bombay

Sarvashri D. N. Shroff and Shanti Lal M. Mehta have been re-elected President and Vice-President respectively of the Silk & Art Silk Mills' Research Association (SASMIRA), Bombay for 1961-62.

Building Digest

The February 1962 issue (No. 4) of the Building Digest brought out by the Central Building Research Institute, Roorkee is concerned with *Precast Prestressed Trusses for Long Span Roofs*.

Research Fellowships

The following have been awarded CSIR Fellowships for research in schemes noted against their names :

Senior Fellows :

1. SHRI S. K. SRIVASTAVA—*Pathways of catabolism of dehydroascorbic acid* (Lucknow University, Lucknow).

2. SHRI P. C. MALLICK—*Development of creep resisting alloys* (Banaras Hindu University, Varanasi).

3 & 4. SARVASHRI B. R. DAS & R. N. SINGH—*Spectroscopic studies of polyatomic molecules* (Banaras Hindu University, Varanasi).

5. SHRI MANJIT SINGH—*Constitution of liquid alloys*(Banaras Hindu University, Varanasi).

6. Shri Satya Priya Moulik—*Collid research unit* (University College of Science & Technology, Calcutta).

7. Dr (Miss) Maharani Chakravorty—*Microbial synthesis of proteins in relation to the biogenesis of nucleic acid* (Bose Institute, Calcutta).

8. Shri Deb Kumar Basu—*Biosynthesis and metabolism of mucopolysaccharides* (Christian Medical College & Hospital, Vellore)

9. Shri Mohd Sardar Yar Khan—*Investigation of indigenous medicinal plants* (Muslim University, Aligarh).

Junior Fellows :

1. SHRI. CH. SUBBARAYAN—*Biosynthesis of coenzymenucleotides* (Indian Institute of Science, Bangalore).

2. SHRI O.K. SHARMA—*Pathways of metabolism in resting and germinating spores of* Aspergillus niger (Lucknow University, Lucknow).

3. SHBI B.N. DEY—*Structure and properties of alloys by X-ray and other methods* (Indian Association for the Cultivation of Science, Calcutta).

4. SHRI ABRAHAM ANTONY—*Studies on acid metabolism in moulds and plants* (M. S. University of Baroda, Baroda).

5. SHRI S. RAMAKRISHNA—*Cosmic and solar noise* (Physical Research Laboratory, Ahmedabad).

6. SHRI K. C. NAND—*Verification and applicability of the theory of absolute reaction rates for the coagulation process* (University of Allahabad, Allahabad).

7. SHRI G. R. RAO—*Polyploidy and evolution in Angiosperms* (University of Delhi, Delhi).

8. SHRI A.S. BALASUBRAMANIAN—*diosynthesis and metabolism of mucopolysaccharides*(Christian Medical College & Hospital, Vellore).

9. SHRI P. RAMESH—*Observation of meteors by radio* (Andhra University, Waltair).

10. SHRI F. N. MITRA—*Mineralogical, textural and paragenetic study of the manganese ores of India and the application of its results to genetic problems and beneficiation of low-grade ores* (Jadavpur University, Calcutta).

11. Shri K. G. Agarwal—*Theoretical investigation of the vibrational and electronic properties of solids* (Panjab University, Chandigarh).

12. Shri S. N. Giri—*Study of thermal expansion of organic crystals by X-ray diffraction method* (Indian Association for the Cultivation of Science, Calcutta).

13. Shri P. Mathew—*Utilisation of Indian turpentine oil of* Pinus longifolia *Roxb): An investigation into the feasibility of producing terpineols from* 3-*carene* (Christian Medical College & Hospital, Vellore).

Research Schemes Terminated

Electrical conductance and viscosity of electrolyte solutions and *Dielectric constant in relation to liquid miscibility*—Dr. C.V. Suryanarayana, Mysore University, Mysore. (Jan. 31, 1962).

2. Analytical aspects of some organic compounds: Determination of rare metals, thorium, zirconium, uranium, etc. with organic reagents—Prof. S. K Dutta, Victoria College, Coochbehar (Feb. 28, 1962).

3. Problems of fish culture in Delhi State—Dr(Miss) M. Chandy, University of Delhi, Delhi (Feb. 28, 1962)

4. Cosmic and solar radio noise—Dr K. R. Ramanathan, Physical Research Laboratory, Ahmedabad (Feb. 28, 1962).

5. Ionospheric sounding and associated studies of the ionosphere at Ahmedabad—Dr K.R. Ramanathan, Physical Research Laboratory, Ahmedabad (Feb. 28, 1962).

RESEARCH IN PROGRESS

National Laboratories

NML, JAMSHEDPUR

Determination of Molecular Hydrogen in Steel—Molecular hydrogen present in the microspores of steel affects the ductility of steel. An electrochemical method has been developed for the accurate determination of molecular hydrogen in steel. In this method, the test piece (3in. × ½ in. × 1/16 in.) is first cathodically charged with hydrogen in a sulphuric acid bath and then it is made the anode in an aqueous bath containing sodium potassium tartrate and sodium chloride. A thin sheet of platinum is used as cathode and the anode chamber is separated from the cathode chamber. The potential is controlled in such a way as not to allow evolution of oxygen in the anode chamber. During anodic dissolution, molecular hydrogen is liberated at the anode and collected in an inverted burette filled with the same bath solution.

CFTRI, MYSORE

Fish Flour and Protein Food—A process for the preparation of edible fish flour from oil sardine has been standardised. A protein food based on a blend of low-fat groundnut flour, Bengal gram and fish flour (2:1:1), and fortified with calcium salts and minerals has been prepared. Both the fish flour and the protein food are good supplements to poor Indian diets.

Amino Acids from Microorganisms.—Screening of bacterial cultures has been taken up with a view to isolating potential producers of amino acids. Over 1000 bacterial cultures have been screened and a few strains suitable for production of valine and alanine have been isolated. One of the isolates was suitable for the production of valine on a glucose salt medium. Conditions are being worked out for increasing the yields and reducing the time of fermentation.

CLRI, MADRAS

Aldehydic Constituents of Chamois Tannage—In an attempt to identify the aldehydic products formed from fish oil when it is used in chamois tannage, a procedure for chromatographically separating the 2:4-dinitrophenylhydrazones of the unsaturated aldehydes, acrolein and crotonadehyde, from the saturated aldehyde glyoxal, from a mixture of the aldehydes, using hexane, glacial acetic acid and xylene in the ratio of 5 : 1 : 3 has been standardized. Applying this procedure, it has been found that unsaturated aldehydes are formed during chamios tanning and that they contribute to the tanning process.

CRRI, NEW DELHI

Brick Concrete Pavements—The strength requirement of the area surrounding the neutral axis of the pavement is far less than that at the bottom or top of the layer. Hence, replacement of concrete by materials of less strength, such as bricks, in this area has been studied in the laboratory. As the studies gave encouraging results, a test track, using brick concrete, is proposed to be laid. This design is expected to reduce the cost of pavement by 15 per cent for the same load-carrying capacity.

RRL, JORHAT

Utilization of Ekra Reed—Chemical investigations of the ekra (*Erianthus ravennae*) reeds occurring abundantly in Assam have shown that it is possible to prepare the following products from them : (*i*) paper adhesive of satisfactory strength from the hemicellulosic fraction, (*ii*) furfural, an important industrial raw material for plastics, in 10 per cent yield and (*iii*) rayon grade pulp containing 90 per cent of α-cellulose.

Utilization of Tea Waste — A method has been developed for the complete extraction of caffeine from Assam tea waste, at the same time recovering the tannins thereof in the form of an alkaline cutch. A surface coating enamel for wooden bobbins has also been developed from the alkaline cutch.

Sponsored Research

Liquid Limit of Soils—A new method of determining the liquid limit of soils has been developed. It is based on a relationship established between the liquid limit and viscosity of soil in soil : water (1:2) suspension. Methods so far available for the determination of liquid limit, viz. Casagrande's and Uppal's, are entirely empirical. The new method has an efficiency of 30 determinations per day of 6 working hours, as against 4 for the above two methods—A.N. Puri, H. S. Chugani & D. C. Ephraim, Field Research Station, Bombay.

Chromosome Size and Genomes as Factors Controlling Radiosensitivity-Radioresponse of long and short chromosomes occurring in the complement of different as well as the same individuals has been studied. Low dosage of X-rays were applied to the roots of *Vicia faba*, *V sativa*, *Haemanthus multiflorus*, *Aloe perfoliata* and *Cipura paludosa*. Long chromosomes of *V. faba* were more sensitive than short chromosomes of *V. sativa*. In the other three species, where long and short chromosomes, occur in the same complement, high sensitivity of long chromosome has been noted.

In order to work out the influence of genome on radiosensitivity, different dosages of X-rays were applied on young seedlings of *Lathyrus sativus*, *Pisum sativum* and *Lens esculentum*, all having more or less the same chromatin matter and the same chromosome number ($2n = 14$). In lower dosages there was a proportional increase in the frequency of fragments with the increase in dose, whereas in higher dosages, there was no correlation. *L. esculentum* with comparatively lesser chromatin matter was similarly more radioresistant. Radiosensitivity was otherwise nearly similar in all the three species, though the genomes are widely different. This uniform behaviour has been attributed to the chromatin matter and size of the chromosomes—A.K. Chatterji, A. Sharma & A.K. Sharma, Botany Department, Calcutta University, Calcutta.

Research Papers

Determining the suitability of clays for the production of light weight aggregate—V.S. Ramachandran, N.C. Mazumdar & N.K. Patwardhan, CBRI, Roorkee. *Indian Concr. J.*, **35** (1961), 453-56.

A note on building classification —P.V. Gopalakrishnan & M.I. Ansari, CBRI, Roorkee. *IASLIB Bull.*, **6** (1961) 136-40.

β-Phenylethanolamines : Part II—Studies on cyclohydrogenation of a few acylaminoalcohols—N. Adityachaudhury, S.K. Srimany & (Mrs) A. Chatterjee, University College of Science, Calcutta. *J. Indian chem. Soc.*, **38** (1961), 15-18.

Analysis of R.C.C. shear walls in multi-storeyed buildings—M. G. Tamhankar. *Indian Build.*, **9** (12) (1961), 171-3.

Perforated bricks—L. C. Jain. *Nat. Build. Org. J.*, **6** (3) (1961), 39-47.

Waterproofing of R.C.C. flat roofs —H.V. Mirchandani, J. S. Sharma & V.K. Jain. *J. Instn Engrs India (Poona)*, (1961), 97-110.

PERSONAL

(*Contd. from p. 1, col. 3*)

DR G.S. SIDDAPPA, Assistant Director, CFTRI. Mysore—*Panel set up to decide about the pattern of Standards for Processed Fruits & Vegetables*.

PROF. M.V. BOPARDIKAR, Assistant Director, CPHERI, Nagpur—*Drainage Sub-Committee*.

SHRI J.M. DAVE, Assistant Director, CPHERI, Nagpur—*Sanitary Installation Sub-Committee*.

DR S.K. BARAT, Assistant Director, CLRI, Madras—*Methods of Sampling & Tests Sub-Committee*.

MR TH. BARLAG, Unesco Expert, CMERI, Durgapur–*Unfired Pressure Vessels Sectional Committee* and *Design & Fabrication Sub-Committee*.

DR M. L. KHANNA, Senior Scientific Officer, NPL, New Delhi—*Method for Determination of Viscosity working group*.

DR S. KUMAR, Senior Scientific Officer, CGCRI, Calcutta—*Panel to study Documents* and *Volumetric Glassware Sub-Committee*.

SHRI J.B. RAO, Senior Scientific Officer, CLRI, Madras—*Heavy Leather Sub-Committee*; and *Medium & Light Substance Finished Leather Sub-Committee*.

Honours and Awards

DR ATMA RAM, Director, CGCRI, Calcutta—President, Institution of Chemists (India) for the year 1962-63 ; member, Council of the Indian News Association, Calcutta.

DR I.C. CHOPRA, Deputy Director, RRL, Jammu—Member, Research & Publication Sub-Committee of the Executive Council of the Oil Technologists Association of India.

PATENTS & PROCESSES

Patent Filed

79107 : *A method for the preparation of glucose cycloacetoacetate hydrolysate*—M. C. Nath, J. M. Khanade & E.P.M. Bhattathiry, University Department of Biochemistry, Nagpur.

Patent Accepted

71322 : *A process for the preparation of disinfectant grade creosote oil from primary tars*—D. P. Agrawal, M.G. Krishna & S. Husain Zaheer, RRL, Hyderabad.

Patents Sealed

69062 : *Improvements in or relating to ferroelectric ceramic materials* —V B. Tare, A.P.B. Sinha & A.B. Biswas, NCL, Poona.

69617 : *A process for the extraction of phenols from coal tar oils and aqueous phenolic liquors*—M.B. Roy, P.K. Banerjee, A.N. Basu & A. Lahiri, CFRI, Jealgora.

Processes Leased Out

The following processes have been further leased out for commercial development :

1. Hot dip aluminising of ferrous materials (Indian Pat. Nos 55289, 57938 & 65230), NML, Jamshedpur —*Gujarat Steel Industries, Ahmedabad* and *Bharat Engineering & Manufacturing Co., Singhbhum (Bihar)*.

2. Extraction and utilization of sisal wax (Indian Pat. Nos 64968 & 65440), NCL, Poona—*Industrial & Engineering Corporation, Calcutta*.

3. Malted milk powder and allied products (Indian Pat. Nos 64457 & 64458), CFTRI, Mysore—*Ahmedabad District Co-operative Milk Producers Union Ltd., Ahmedabad*.

4. Nicotine sulphate from tobacco and tobacco wastes (Indian Pat. Nos 45666 & 54867), NCL, Poona —*Sansar Chand Lachmandas, Saharanpur*.

PROF. G.S. RAMASWAMY, Deputy Director, CBRI, Roorkee—Chairman of the Shell Structure Group of the Institution of Engineers (India) for three years.

SHRI S. GUPTA, Senior Scientific Officer : Grade I, CFRI, Jealgora—Member, Mining, Geological and Metallurgical Institute of India.

SHRI SAMIR SEN, Senior Scientific Assistant, CFRI, Jealgora—Associate of the Institute of Information Scientists, U.K.

Retirement & Resignations

SHRI V. CADAMBE, Director, CMERI, Durgapur—Relinquished charge of his post on retirement (Jan. 9, 1962).

SHRI P. JANARDHAN, Clerk of Works, CMERI, Durgapur (Jan. 2, 1962).

SHRI G.M. MAITRA, Pool Officer, IIP—Relieved of his duties consequent on his joining the Government Test House, Calcutta (Jan. 27, 1962).

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I, B.N. Sastri, hereby declare that the particulars given above are true to the best of my knowledge and belief.

Feb. 26, 1962

(Sd.) B.N. SASTRI
Signature of Publisher

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CSIR NEWS

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MEETING

A meeting of the Standing Committee for Retiring Research Scientists will be held in the North Block, Central Secretariat, New Delhi on March 19, 1962 at 3.00 p.m. Prof. Humayun Kabir, Minister for Scientific Research & Cultural Affairs and Vice-President, CSIR, will preside.

PERSONAL

Appointments

DR DEVENDRA GUPTA—Senior Scientific Officer : Grade I, NML, Jamshedpur (Feb. 14, 1962).

DR C.K. CHATTERJEE—Senior Scientific Officer : Grade II, CMRS, Dhanbad (Feb. 12, 1962).

Promotions

DR J.S. AHLUWALIA—Assistant Director, IIP, New Delhi (Jan. 4, 1962).

SHRI BALDEV SINGH—Senior Scientific Officer : Grade I, RRL, Hyderabad (Dec. 30, 1961).

SARVASHRI L.J. BALASUNDARAM and VED PRAKASH—Senior Scientific Officers : Grade I, NML, Jamshedpur (Feb. 14, 1962).

SHRI N. JAYARAMAN, Senior Scientific Assistant, CBRI, Roorkee—Junior Information Officer, Publications Directorate, CSIR, New Delhi (Feb. 9, 1962).

Deputation

DR V. SUBRAHMANYAN, Director, CFTRI, Mysore—*Rome* : Participant in the meeting of the Protein Advisory Group of FAO/WHO/UNICEF (Mar. 26-29, 1962).

Nominations

DR S. HUSAIN ZAHEER, Director, RRL, Hyderabad—Member, Committee for Assessment of coal requirements for establishment of coal-based industries, Andhra Pradesh and Chairman, Experts Committee appointed by the Board of Directors, Fertilizer Corporation of India, to report on under-production at Sindhri Unit, Fertilizer Corporation of India.

Honours & Awards

DR V. SUBRAHMANYAN, Director, CFTRI, Mysore—*London*: Chairman at the Session of the International Congress on Food Science (Sept. 1962).

DR K.N. SINHA, Officer on Special Duty, CMRS, Dhanbad—Vice-President, National Association of Colliery Managers.

DR I.C. CHOPRA, Deputy Director, RRL, Jammu—Fellow (not member as given in *CSIR News* Vol. 12, No. 3, p. 4), Indian Academy of Sciences ; and Member, Board of Editors of the *Indian Oil & Soap Journal*.

SHRI S. S. JOSHI, Senior Scientific Officer : Grade II, RRL, Hyderabad —Awarded Ph.D. degree by Banaras Hindu University for his thesis : *Studies on bleaching earths*.

Space Research

A National Committee for Space Research has been set up by the Government of India. The Committee consists, besides others, of the following : Dr Vikram A. Sarabhai, Chairman of the Physical Research Committee of CSIR, (*Chairman*), Dr A.P. Mitra, Assistant Director, National Physical Laboratory, New Delhi and Dr K. R. Ramanathan, Director, Physical Research Laboratory, Ahmedabad and Chairman, Rain & Cloud Physics Research Unit and Radio Research Committee of CSIR (*Members*)

CBG Planning Committee

A Planning Committee for the Central Board of Geophysics (CBG) has been constituted. It consists of the following members : Prof. M.S. Thacker, Director-General, Scientific & Industrial Research (*Chairman*) ; Dr K.R. Ramanathan ; Dr S. Bhagawantam ; Director-General, Geological Survey of India ; Dr A.N. Tandon; Shri L. Venkatakrishna Iyer ; Prof. Jai Krishna ; Shri L.N. Kailasam ; Financial Adviser to CSIR ; and Director, CBG.

New Secretary takes over

SHRI A. J. KIDWAI (*b.* July 7, 1917, Barabanki, U.P.) took over as Secretary, Council of Scientific & Industrial Research on Feb. 27, 1962.

After his education at the Lucknow University, Shri Kidwai started his career as a journalist on the staff of the National Herald of Lucknow and the Hindustan Times of New Delhi. In 1947, he joined the Indian Information Services of the Ministry of External Affairs. He served as Press Attache of Indian Embassies in Rome and Ankara and as Public Relations Officer to the High Commission of India in London.

In 1954, he was appointed Deputy Secretary in the Ministry of External Affairs and in 1956 was posted as First Secretary to the Embassy of India in Berne. In 1958, he returned as Deputy Secretary in the Ministry of Commerce and Industry. His last post under that Ministry was that of Deputy Chairman, Tea Board, Calcutta.

The office of the Central Board of Geophysics (CBG) has been shifted from Calcutta to Hyderabad in Feb. 1962. The present address is : CBG, Osmania University Campus, Hyderabad-7 (A.P.)

BRIEFS

Symposium on Ferro Alloy Industry in India

The symposium on 'Ferro Alloy Industry in India' organised by the National Metallurgical Laboratory (NML), Jamshedpur (*CSIR News*, Vol. 12, No. 2, p. 1), during Feb. 12-15, 1962 was inaugurated by Prof. M. S. Thacker, Director-General, Scientific & Industrial Research and presided over by Shri Jehangir Ghandy, Chairman of the Executive Council of the Laboratory.

DR B.R. NIJHAWAN, Director, NML, in the course of his welcome address, stressed the importance of ferro alloys in alloy, tool, special and stainless steel industries and made a reference to the role played by the Laboratory in the development of mineral, ferrous and nonferrous industries. Shri Ghandy pointed out the need for such a symposium in view of the fact that there is no integrated industrial unit producing different ferro alloys in the country. Prof. Thacker expressed the hope that the contributions and technical exchange of views arising out of the deliberations of the symposium will be very valuable for the development of ferro alloy industry in India.

Twenty nine papers were presented and discussed in six sessions: (i) Survey of raw materials, sampling and role of research. (ii & iii) Extraction and production technology; (iv) Scope of ferro alloy industry, by-products, standardization, etc., (v) Physico-chemical reactions, and (vi) General aspects of ferro alloy technology.

Abstracts of papers presented at the symposium have been published in the *NML Technical Journal*, Vol. 4, No. 1 (Feb. 1962).

The occasion was availed of for the inauguration of the pilot submerged arc smelting furnace by Prof. M.S. Thacker. The furnace (production capacity, 1 ton of ferro alloy per day) supplied in part by the BIRLEFCO (Melting Ltd), U.K. and manufactured partly by the Associated Electrical Industries (India) Private Ltd, Calcutta, has been commissioned at a cost of Rs 5.5 lakhs. In addition to research work in the Laboratory using the furnace, customer's raw materials will be given operational trial in the furnace on a contract basis to obtain valuable data on smelting techniques and economics of production.

U.S. Aid for CFTRI Project

The investigations on the Development and valuation of protein-rich foods carried out by the Central Food Technological Research Institute (CFTRI), Mysore are to be extended in accordance with an agreement between the Council of Scientific & Industrial Research and the National Institutes of Health (NIH), U.S.A. The latter have offered financial assistance of the value of Rs 38 lakhs as well as collaboration in the project initially for a period of four years.

DR V. SUBRAHMANYAN, Director, CFTRI, will be the Principal Investigator at the Institute and DR ARNOLD E. SCHAEFFER, the Project Officer at NIH.

RRL, Hyderabad Annual Report

The Annual Report for 1960-61 of the Regional Research Laboratory, Hyderabad has been published.

The 117-page (Royal 8 vo) report presents the work carried out by the laboratory under the following heads: Oils and Fats; Surface Coatings; Organic Chemistry, Drugs and Pharmaceuticals; Essential Oils and Aromatic Chemicals; Entomology; Biochemistry; Hand-made Paper and Cellulose; Coal; Heavy Chemicals and Fertilizers; Ceramics; X-ray and Physicochemical Studies; Industrial Water and Analytical Chemistry; Chemical Engineering; General Engineering; and Operational Research, Technical Information and Liaison. Research and review papers published and patents taken by the Laboratory have been included.

* * *

The *National Register of Scientific and Technical Personnel* (*Indians Abroad*), Series E, No. 13 (Jan. 1962) has been published. Brief particulars of 116 engineers of 15 different categories are listed in the 48-page Directory, priced Re 0.75.

New Division in CEERI

A new Division for Solid State Devices has been started at the Central Electronics Engineering Research Institute, Pilani. The Division will undertake fabrication of semi-conductor devices using silicon.

* * *

Foundry Moulding Sands of India published by the National Metallurgical Laboratory, Jamshedpur, has been reviewed in the *Journal of the Institute of Metals*, London (Vol. 6, Part 5, Jan. 1962) as follows: "The reader will find a most comprehensive survey of Indian sands and bonding clays, and from both text and tables, their suitability for almost any foundry purpose can be readily determined.....The book presents in a most lucid manner the results of what must have been a monumental research programme. If a similar modern work for the sands of United Kingdom be undertaken, it could, with profit, be modelled on the same line as this monograph".

Dr D.M. Newitt

DR D.M. NEWITT, F.R.S., Professor of Chemical Engineering, Imperial College of Science & Technology, London, visited the Central Fuel Research Institute, Jealgora and the Central Mining Research Station, Dhanbad on Feb. 23 and Feb. 24, 1962 respectively. Dr Newitt is visiting some of the national laboratories at the instance of Prof. M. S. Thacker, Director-General, Scientific & Industrial Research.

Research Fellowships

The following have been awarded CSIR Fellowships for research in schemes noted against their names:

Senior Fellows

1. Shri A. S. Jhina—*Synthesis of heterocyclic steroids and polycyclic compounds, etc.* (University of Bombay, Bombay).

2. Shri S. K. Majumdar—*Separation of heavy metals by ion exchange* (Jadavpur University, Calcutta).

Junior Fellows

1. Shri S. B. Patel—*To investigate the constituents of essential oil from the buds of Surangi*—Ochrocarpus longifolius(Janta Shikshana Samiti's Science & Banashankari Arts College, Dharwar).

2. Shri H. Gopal Nath—*Application of analogue computer for the study of nonlinear servo problems* (University College of Technology, Calcutta).

3. Shri L.S. Ramakrishna Rao—*Studies on paramagnetic resonance* (Andhra University, Waltair).

4. Shri Sunil P. Dhage—*Fixing suitable specification for assessing the suitability of different soils etc.* (Field Research Station, Bombay).

RESEARCH IN PROGRESS

National Laboratories

CFRI, JEALGORA

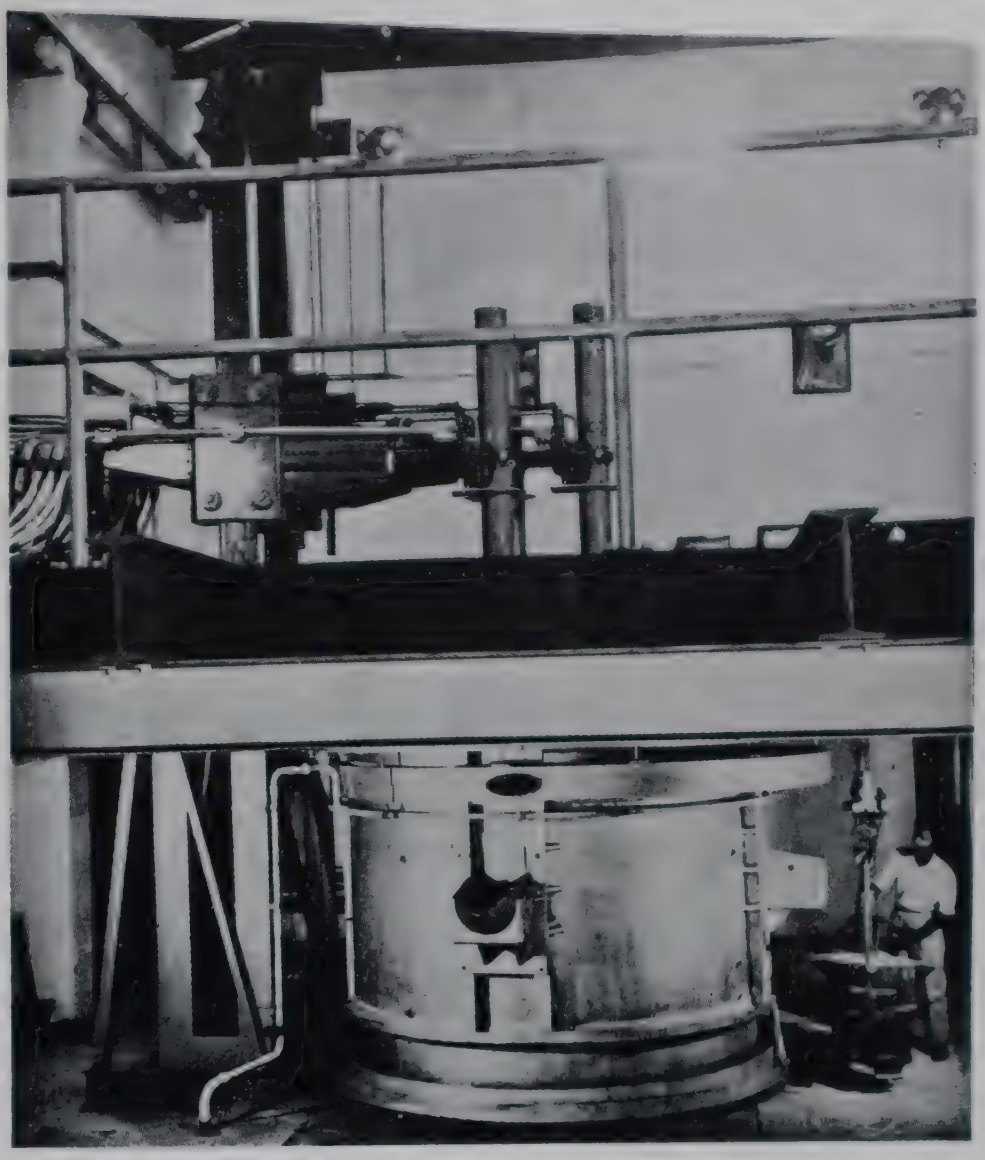
Determination of the purity of Substances by CCD. Method—A new method of determining the purity of a substance, based on the theory of Craig's counter-current distribution (CCD), has been developed. The method consists in distributing a known weight of the sample between an immiscible solvent pair in a peak tube and using a suitable transfer number. The fractional amount (Y_m) of the substance in the peak tube is determined by simple evaporation or otherwise; the theoretical band (S) is calculated with the help of the equation $SY_m=2.422$. The experimental band spread is found from two tubes (one from each end of the band) each of which contains one per cent (or just greater than one per cent) of the amount of the substance in the peak tube. When the experimental band spread for an applied transfer is greater by at least two units than that corresponding to the fractional amount of the substance in the peak tube, then the sample is definitely nonhomogeneous. Using one-tenth of the transfer number needed for just complete separation of two solutes, a detection of 5 per cent (or less) of the impurity can be made—N.C. SAHA.

CDRI, LUCKNOW

Oral Contraceptives—The antifertility effect of the estrogenic compound, tri-*p*-anisylchlorethylene, on albino rats is being studied by orally administering graded doses (2 to 20 mg./per day) for 10 days. The highest dose caused 100 per cent reduction in fertility. The compound exerted its antifertility effect through suppression of ovulation.

CECRI, KARAIKUDI

Electrolytic Salicylaldehyde—A cell using rotating amalgamated cathodes (capacity, 2-3 lb. per run) and an improved procedure for preparing salicylaldehyde have been developed. The improvement in procedure consists in simple steam distillation of the catholyte after reduction, which enables the reuse of electrolyte in subsequent experiments and thus lowers the cost of production. Using the cell and the improved procedure, 9 lb. of aldehyde have been produced in 4 runs of 4 hr duration each.



NML, Jamshedpur—Pilot Submerged Arc Smelting Furnace

RRL, HYDERABAD

Enrichment of Gas from internally heated LTC Plant—Investigations were carried out on the enrichment of gas produced in the Lurgi Spüel gas low temperature carbonization (LTC) plant by mixing oxygen with air in carbonizer burners such that the total oxygen is maintained at about 30 per cent of air. The investigations have shown that (i) the calorific value of the gas can be increased from 120-140 to 230-245 B.t. u./cu. ft; (ii) the yields of semi-coke, tar, oil and liquor are not affected; and (iii) the total therms of the gas produced per ton of coal can be increased by 34 per cent of the total therms of the gas during normal operation conditions of the plant.

Sponsored Research

Modification of Jute Fibre Properties—The object of the scheme was to develop suitable methods for acetylation and cyanoethylation of jute with a view to modify the properties of the fibre and hence extend its uses.

Conditions for acetylation of jute both in the liquid phase (using catalysts like boron trifluoride, *p*-toluenesulphonic acid and magnesium perchlorate) and in the vapour phase have been worked out. A method has also been developed for cyanoethylation of jute to varying extents (1.3 to 6.5%N content). It consists in treating the sample with sodium hydroxide solution (2%) to 100 per cent imbibation and reacting the

alkali-treated material with acrylonitrile at 60° for different periods of time, the material being finally washed with dilute acetic acid followed by water.

The colour of bleached jute remained unaltered on acetylation in the liquid phase, but there was deterioration in shade on vapour phase acetylation. Dry strength of jute was unimpaired on acetylation in vapour phase, but decreased to some extent when acetylated in the liquid phase. Wet strength increased on vapour phase acetylation.

Moisture absorption capacity of jute diminished after acetylation, the extent of the decrease depending upon the degree of acetylation, the method of treatment and the relative humidity of the ambient atmosphere. Acetylation improved resistivity to heat and decreased the susceptibility of jute to photochemical degradation; complete prevention of yellowing varied with the method of acetylation. Acetylation afforded a high degree of protection against bacterial attack.

Cyanoethylation brought about a slight reduction in dry strength, an appreciable increase in wet strength and a pronounced reduction in moisture absorption, increase in resistance to photochemical degradation, and a high degree of immunity to microbial attack. Etherification also afforded protection against acid solubility and resistivity towards delignifying treatment.—A. B. SEN GUPTA & S. K. DEB, Indian Jute Mills Association Research Institute, Calcutta.

Action of Coumarin Derivatives on Plants Cells—The chromosome breaking capacity of a number of coumarin derivatives, such as seselin, marmesin, mesuol, dimethylmesoul, psoralene and isoporalene, was studied with a view to finding out the exact chemical constituents responsible for this particular activity. It was found that activity threshold and water solubility were inversely proportional. Although the chromosome breaking activity of the coumarin derivative depended on the entire chemical structure, it was accelerated by the addition of —OH groups, and inhibited by $-CH_3$ groups in absence of —OH groups—A. K. SHARMA & M. CHAUDHURI, Botany Department, Calcutta University, Calcutta.

PATENTS & PROCESSES

Patents Filed

INDIA

80742 : *A process for the production of diesel fuel from low temperature coal tar or fractions thereof*—B. S. Narayana Rao, K. M. Murad, R. Vaidyeswaran, A.V.R.M. Gopala Krishna & S. H. Zaheer, RRL, Hyderabad.

GERMANY

C 25 989 IVc/12r : *Acetex process for the extraction of tar acids*—D.K. Sen, C.S.B. Nair, A.N. Basu & A. Lahiri, CFRI, Jealgora.

Patents Accepted

71190 : *Preparation of anion-exchange resin*—N. Krishnaswamy, K.P. Govindan & B.D. Dasare, NCL, Poona.

72851 : *A modified process for preferential separation of the non-fatty constituents and simultaneous purification of the seed lipids*—Y. C. Awasthi, C. Mitra & K. N. Kaul, NBG, Lucknow.

72869 : *Purification of cottonseed soapstock to obtain light coloured distilled fatty acids*—C. C. Ninan, S.R. Rao & S. H. Zaheer, RRL, Hyderabad.

Patent Sealed

69620 : *A process for the production of cellular rubbers and plastics*—R.G. Gokhale & U. Shankar, NCL, Poona.

Processes Leased out

The following processes have been further leased out for commercial development.

1. Hot dip aluminising of ferrous materials (Indian Pat. Nos. 55289, 57938 & 65230), NML, Jamshedpur—*Excelsior Commercial Corporation*, Bombay and *Alcock, Ashdown & Co. Limited*, Bombay

2. Carbon slabs & rods, NPL, New Delhi—*Best & Co. Private Limited*, Madras.

Terminated Schemes

The following Research schemes have been terminated with effect from Feb. 28, 1962.

1. *Optical resolution on synthetic and natural* products—Dr K. A. Thaper, Gujrat University, Ahmedabad.

2. *Anatomical and morphological studies of the flower in the Gramineae*—Dr. V. Puri, Meerut College, Meerut.

3. *Botanical survey of flora of Andhra University campus and Waltair*—Prof. J. Venkateswarlu, Andhra University, Waltair.

4. *Continuity of prestressed concrete structure*—Shri K.K. Banerjee, Bengal Engineering College, Howrah.

5. *Investigation into mechanism of experimental hypercholesterolaemia*—Dr D. P. Sadhu, Indian Veterinary Research Institute, Izatnagar (U.P.).

6. *Investigation of light gauge steel sections with regard to cold forming and connecting methods etc.*—Shri M.N. Saxena, University of Roorkee, Roorkee.

7. *Study of small angle scattering in fibres and fibres of cellulose including jute*—Dr S. C. Roy, Indian Jute Mills Association Research Institute, Calcutta.

8. *Carbohydrate metabolism as affected by sulfa drugs* — Prof. S. Banerjee, Bikaner Medical College, Bikaner.

Research Papers

Direct (one step) solvent extraction of groundnuts—Y. K. Raghunatha Rao, R.G. Krishnamurthy & A. S. Guruvenkatesh, CFTRI, Mysore. *Indian Oilseeds J.*, **5** (1961), 2.

Direct solvent extraction of groundnuts : Part II—Y. K. Raghunatha Rao, A. S. Guruvenkatesh, K. G. Ramaswamy & L. S. Subbarao, CFTRI Mysore. *Indian Oilseeds J.*, **5** (1961), 256-8.

Chemistry of smilagenone and *epi*-smilagenin (A review)—M. N. Mitra, School of Tropical Medicine, Calcutta. *J. Instn. Chem. (India)*, **33** (1961), 27-36.

Determination of endothermal heat effect of clays in the study of thermal efficiency of brick kilns—V.S. Ramchandran & N.C. Majumdar, CBRI, Roorkee. *J. app. Chem.* **11** (1961), 449.

Frictional resistance of bored piles in expansive clays—Dinesh Mohan & Subhash Chandra, CBRI, Roorkee. *Geotechnique, Lond.*, **11** (1961), 294-301.

Constitution and properties of stabilized dolomite—M.R.K. Rao, P.C. Sen & H.V. Bhaskar Rao, NML, Jamshedpur. *Refract. J.*, **37** (1961), 304-8.

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26.4.62
MYSORE

GOVERNING BODY DECISIONS

The Board of Scientific & Industrial Research and the Governing Body of the Council of Scientific & Industrial Research met in New Delhi on March 27 and 28, 1962 respectively. Prime Minister, Shri Jawaharlal Nehru, presided.

Corrosion Advisory Bureau

The Governing Body approved in principle the setting up of a Corrosion Advisory Bureau under the Metals Research Committee of the CSIR. The Bureau will give publicity to problems of corrosion and the economic waste involved and render techinal advice on methods of preventing it. It will also regularly bring out and circulate bulletins to disseminate information on research work on corrosion carried out in India and abroad.

A committee headed by Maj. Gen. B. D. Kapoor will examine the preparation of a corrosion map of India.

New Units, Field Centres and Stations

Establishment of the following new units, field centres and stations of the national laboratories has been sanctioned.

UNITS : (i) National Metallurgical Laboratory, Jamshedpur—Production of magnet alloys ; and (ii) Central Public Health Engineering Research Institute, Nagpur—Research on virus pollution of water at Poona.

FIELD CENTRES : Central Public Health Engineering Research Institute, Nagpur—Jaipur and Bhopal and a sub-centre at Okhla (Delhi).

FIELD STATIONS : Central Mining Research Station, Dhanbad—Raniganj, Karanpura and Madhya Pradesh coalfields.

The Governing Body also approved a proposal to expand the facilities at the Oceanographic Research Wing at Cochin to enable it to function as an International Data Centre in connection with the International Indian Ocean Expedition.

Geophysics Research Board

An 18-member Geophysics Research Board under the Chairmanship of Dr. K. R. Ramanathan, Director, Physical Research Laboratory, Ahmedabad has been constituted. The Board will encourage and stimulate research in geophysics and related fields and will cooperate with international agencies and exchange information with them.

New Research Schemes

Seventy new research schemes covering various branches of science, engineering and technology were approved (list given on pp. 3 & 4). Besides, continuation of 206 research schemes during 1962-63 and 190 research schemes for a specific period has also been approved, bringing the total number of schemes to 466.

Prof. M. S. Thacker, Secretary, Ministry of Scientific Research & Cultural Affairs and Director-General, Scientific & Industrial Research has been awarded the *Scientific Research Committee Medal for 1961* by the Scientific Research Committee (SRC), Uttar Pradesh. Prof. Thacker will receive the award at a meeting of the SRC at the Central Drug Research Institute, Lucknow on April 14, 1962.

Symposia & Seminars

Approval was given to holding of the following symposia/seminars during 1962-63 :

1. *Physical methods in structure determination* — National Chemical Laboratory, Poona.
2. *Electrochemistry* — Central Electrochemical Research Institute, Karaikudi.

(*Contd on p. 2, col. 3*)

Prof M S Thacker Director-General, Scientific & Industrial Research laying the Foundation Stone of the Building for Publications & Information Directorate and Insdoc at NPL Campus, New Delhi on April 6, 1962

BRIEFS

CDRI Extension Blocks

The newly constructed buildings for the Pilot Plant and Process Development Block, the Medicinal Plants Laboratory and the Thacker Museum of the Central Drug Research Institute, Lucknow were declared open by Shri C.B. Gupta, Chief Minister of Uttar Pradesh on March 8, 1962. In his address, commending the work of the Institute, Shri Gupta stressed the necessity of undertaking investigations to prove the usefulness of indigenous drugs in modern medicine.

Prof. M.S. Thacker, Director-General, Scientific & Industrial Research, laid the foundation stone of the two extension blocks to house the scientific divisions of the Institute.

Demonstrations of Processes

Practical demonstrations of the following processes developed by national laboratories will be held during April-May 1962.

1. *Electroplating of metals and aluminium or its alloys*—National Metallurgical Laboratory, Jamshedpur (April 18-21, 1962).

2. *Manufacture of zirconium tanned hockey ball leather*—Central Leather Research Institute, Madras (April 16-May 12, 1962).

Industries and organizations interested in attending the demonstrations may send particulars of their representatives to the Directors of respective laboratories.

Electrolytic Cells

The proceedings of the symposium on Electrolytic Cells organised by the Central Electrochemical Research Institute, Karaikudi from Dec. 30, 1958 to Jan. 1, 1959 have been published.

The 357-page publication includes 39 research papers pertaining to recent advances in the fundamental and applied aspects of electrolytic cells including cell design, electrometallurgical processes and electrolysis of salts, electrochemical behaviour of metals, corrosion in cells, and other applications of electrolytic cells in industry.

Copies of the publication (Price Rs. 5.00) are available from Director, CECRI, Karaikudi.

CDRI, LUCKNOW—A view of the newly constructed Pilot Plant and Process Development Block of the Laboratory

Visits

NBG, LUCKNOW—Mr. Hiroshi Kimura and Dr. Genzo Mitsui, Members of the South-Central India Japan Academic Expedition.

CMRS, DHANBAD—Mr. William A. Pullarton, Manager, Coke & Carbon Development, FMC International, New York (March 20, 1962).

In Parliament

Windmills—Prof. Humayun Kabir, Union Minister of Scientific Research & Cultural Affairs and Vice-President, Council of Scientific & Industrial Research in reply to a question by Shri Bhakt Darshan informed the Lok Sabha that ten windmills have already been started in the country and 60 more would soon be installed by the National Aeronautical Laboratory, Bangalore. Thirty sites for installation of windmills have been inspected in Gujarat, Maharashtra, Mysore and Madras and the possibilities of their installation in Jammu & Kashmir and Ladakh are being explored. More wind surveys are being undertaken and wind electric generators are being acquired from abroad by the Laboratory. Prof. Kabir added that the National Research Development Corporation has been asked to interest firms for commercial production of windmills. (*March 29, 1962*).

(*Contd from p. 1, col. 3*)

3. *Fluidisation*—Indian Institute of Technology, Kharagpur.

4. *Fluid machinery* — P. S. G. College of Technology, Coimbatore.

5. *Recent trends in iron and steel technology*—National Metallurgical Laboratory, Jamshedpur, Iron & Steel Institute, U. K., and Indian Institute of Metals, Calcutta.

6. *Problems concerning the building industry*—Central Building Research Institute, Roorkee.

7. *Public health education and sewage treatment*—Central Public Health Engineering Research Institute, Nagpur and the Public Health Group of the Institution of Engineers (India).

8. *Industrial wastes*—Central Public Health Engineering Research Institute, Nagpur.

9. *Better utilization of buffalo hides*— Central Leather Research Institute, Madras.

In addition, organizing a summer school on the *Structure of solids* at Kodaikanal has been approved.

NEW RESEARCH SCHEMES SANCTIONED

On the recommendation of its Advisory Board the Governing Body of the Council have sanctioned the following new research schemes :

Physics

1. *Band spectra of some diatomic molecules of fifth group*—Dr. M.M. Patel, J. & J. College of Science, Nadiad.

2. *Sepectroscopic investigations of fluoroaromatics*—Dr. I. Achyuta Rao, Gauhati University, Jalukbari.

3. *Electronic structure of solids*—Dr. C. Mande, University of Poona, Poona.

4. *Electronic spectra of heavy diatomic molecules*—Dr. S. V. J. Lakshman, Sri Venkateswara University, Tirupati.

5. *Anelasticity of Metals*—Dr. Bandyopadhyay Karunes, University College of Technology, Calcutta.

6. *Studies in complex molecules*—Dr. D.D. Pant, D.S.B. Government College, Naini Tal.

7. *Study of solid state by nuclear magnetic resonance*—Dr C. R. K. Murty, Andhra University, Waltair.

8. *Sea wave recording and wave refraction studies in relation to coast line formation*—Prof. R. Ramana dham, Andhra University, Waltair.

9. *Measurement of thermal conductivity of gases and studies on related theoretical problems*—Dr. S.C. Saxena, Rajasthan University, Jaipur.

10. *Ultrasonic Gel Time Meter for High Polymers*—Shri A. Pande, Shri Ram Institute for Industrial Research, Delhi.

Rain & Cloud

11. *Radar precipitation studies*—Prof. R. Ramanadham, Andhra University Waltair.

Radio

12. *Polarisation studies of downcoming radio waves at Waltair*—Prof. B. Ramachandra Rao, Andhra University, Waltair.

Chemistry

13. *Synthesis of 4-hydroxythiocoumarins and related compounds*—Dr. Srinivasa Rajagopal, Karnatak University, Dharwar.

14. *An approach to the total synthesis of the alkaloid chaksine and its analogues*—Dr. M. P. Jain, Panjab University, Chandigarh.

15. *Sensitisation of explosive reactions in gaseous media by oxidation and halogenation process*—Dr. B.P. Yadava, Lucknow University, Lucknow.

16. *Organo-germanium compounds*—Dr. T.N. Srivastava, Lucknow University, Lucknow.

17. *Complex compounds of gallium*—Dr. T. N. Srivastava, Lucknow University, Lucknow.

18. *Relationship between chemical constitution-configuration and tanning action*—Dr. B.S. Thyagarajan, University of Madras, Madras.

19. *Comparative electrochemical properties of alkyl, carboalkoxyl and similar groups*—Dr. R.N. Chakravarti, School of Tropical Medicine, Calcutta.

20. *Physical studies for the structure of coordination compounds of sulphur trioxide and their utilization in chemistry*—Prof. R.C. Paul, Panjab University, Chandigarh.

21. *Liquids and liquid mixtures*—Dr. R. Sen Gupta, Kalyani University, West Bengal.

22. *Molecular interactions from the properties of liquids specially in the critical region*—Dr. Ram Gopal, Lucknow University, Lucknow.

23. *Electrical phenomena and adsorption of surfactants at the liquid-liquid interface*—Dr. D.K. Chattoraj, Jadavpur University, Calcutta.

24. *Ion-solvent interaction*--Dr. MN Das, Jadavpur University, Calcutta.

25. *Ultrasonic absorption by some organic liquids*—Dr. Satya Prakash, Allahabad University, Allahabad.

26. *Plant phosphatases*—Dr. R.L. Nath, School of Tropical Medicine, Calcutta.

27. *Isolation and studies in the properties and mechanism of action of α-galactosidase of coffee beans*--Dr. O.P. Malhotra, Banaras Hindu University, Varanasi.

28. *Vitamin C and reproduction*—Dr. C. Deb, University College of Science and Technology, Calcutta.

29. *Enzymatic synthesis of RNA and its role in protein synthesis*—Dr. B.B. Biswas, Bose institute, Calcutta.

30. *Chemical basis of the action of carcinogenic compounds on cells*—Dr. A.K. Sharma, Calcutta University, Calcutta.

31. *A unit on microbial synthesis and metabolic role of vitamin* B_{12}—Dr. S.C. Roy, University College of Science and Technology, Calcutta.

32. *Studies on gas-flow and solid mixing patterns in beds of fluidized solids*—Dr. B. Chennakesavan, A.C. College of Technology, Madras.

33. *Recent microchemical techniques : Application of ring oven technique in qualitative and quantitative analysis*—Dr. A.K. Dey, University of Allahabad, Allahabad.

34. *Studies in mass transfer*—Dr. G.S. Laddha, A.C. College of Technology, Madras.

Geological and Mineralogical Research

35. *Stratigraphical and micropalaeontological investigations of the tertiary rocks of Kutch*—Dr. B.S. Tewari, Lucknow University, Lucknow.

Medicinal Plants

36. *Essential oil of Cinnamon* (Cinnamomum zeylanicum *Nees*)—Dr. M.V. Bhatt, Indian Institute of Science, Bangalore.

37. *Investigation of the following plants of Indian origin* : (i) Lantana camera (ii) Marigold (iii) Litsea zeylanica—Dr. G. S. Krishna Rao, Indian Institute of Science, Bangalore.

38. *Isolation and chemical composition of essential oils from* Seseli indicum, etc.—Dr. G.S. Gupta, Muslim University, Aligarh.

39. *Chemical investigation of essential oils from Indian medicinal plants*—Dr. N.A. Abraham, Muslim University, Aligarh.

Metals

40. *Underground and subsoil corrosion of metals and alloys under Indian conditions*—Dr. B. Chatterjee, Bengal Engineering College, Howrah.

41. *Corrosion inhibition*—Dr. T.L. Rama Char, Indian Institute of Science, Bangalore.

42. *Mechanism of corrosion of iron, nickel and chromium*—Dr. K.C. Tripathi, Banaras Hindu University, Varanasi.

43. & 44. *Quality of modified phenolic resins produced from indigenous sources for anticorrosive composition—Quality of indigenously produced chlorinated rubber required*

for heavy duty corrosion protection in marine and industrial atmospheres—Shri B. Sreenivasa Rao, Naval Chemical and Metallurgical Laboratory, Bombay.

45. *Epoxy resins of cashewnut shell liquid and bhilawan nut shell liquid*—Sarvashri S. Ramanujam & A. Ramamurthy, Research Design & Standards Organisation, Chittaranjan.

46. *Corrosion of copper & its alloys. Prevention of dezincification by modifying the constituents of the alloy or by modifying the medium : Atmospheric corrosion of typical metals alloys at Ahmedabad*—Dr. M. N. Desai, Gujarat University, Ahmedabad.

47. (i) *Corrosion studies in saline atmospheres and* (ii) *incrustation corrosion in pipes carrying potable water in Gujarat*—M.G. Science Institute, Ahmedabad.

48. & 49. *Protective behaviour of sprayed aluminium and zinc under immersed conditions in sea water Stress corrosion cracking of alloys in marine environment*—Shri C.P. De, Naval Chemical and Metallurgical Laboratory, Bombay.

50. *Standardisation of salt fog test*—Shri B. Sanyal, Defence Research Laboratory (Stores), Kanpur.

51. *Anodising of aluminium*—Dr. G. Mukherji, Integral Coach Factory, Madras.

52. *Systematic chemical and metallurgical study of ancient Indian metals, alloys & coins*—Dr. Satya Prakash, University of Allahabad, Allahabad.

53. *Effect of the wet-tensile strength of the moulding sands bonded with Indian bentonites on the surface finish of the coatings*--Dr. S.S. Khanna, Banaras Hindu University, Varanasi.

54. *Physico-chemical investigation of Indian bentonites*—Dr. S.S. Khanna, Banaras Hindu University, Varanasi.

55. *Structural changes in alloys of transition elements with those of B group and the effect of structure on some properties of the alloys*—Dr. Suraj Bhan & Dr. Daya Swarup, Banaras Hindu University, Varanasi.

Biology

56. *Histophysiological studies on the red and white muscle of fishes*—Dr. J.C. George, M. S. University of Baroda, Baroda.

57. *A study of mammalian chromosomes differentiations from* in vivo *and* in vitro *cells*—Dr. G. K. Manna, Bangabasi College, Calcutta.

58. *Metabolism in liverworts* — Dr. V. S. Rama Das, S. V. University College, Triupati.

59. *Transformation studies in antibiotic producing miroorganisms*—Dr. Syamapada Sen, University of Kalyani, West Bengal.

60. *Effects of central nervous system stimulants on the neuronally isolated cerebral cortex*—Dr. A. K. Maiti, University College of Medicine, Calcutta.

61. *Strength of eye-blink conditioning as a joint function of the Sc-Su interval and the intensity of Sc*—Dr. M. K. Dey, Panjab University, Chandigarh.

62. *Effects of ultraviolet light on DNA transforming factor in* Micrococcus pyogenes *var.* aureus—Dr. P. Nandi, Bose Institute, Calcutta.

63. *Physiology of experimental ataxia*—Dr. A. K. Mukherjee, Presidency College, Calcutta.

64. *Histology, histochemistry and physiology of the* Saccus vasculosus *in fishes*—Dr. M. R. N. Prasad, University of Delhi, Delhi.

65. *Physiology of the Lemnceae*—Satish C. Maheshwari, University of Delhi, Delhi.

Electrical & Mechanical Engineering

66. *Engineering manufacture, specially in the field of welding, forging and metal cutting*—Shri K. G. Chandiramani, Indian Institute of Technology, Kharagpr.

Civil Engineering and Hydraulics

67. *Flow characteristics of non-Newtonian fluids*—Dr. K. C. Roy Chowdhury, Jadavpur University, Calcutta.

Wind Power

68. *Design and development of small wind power plant for rural uses*—Sarvashri G. R. Damodaran, C. Thyagarajan. V. Rajagopal & S. Nagarathnam, P. S. G. College of Technology, Coimbatore.

Public Health Engineering

69. *Providing sea borne interceptor for hand pump*—Shri Gurbachan Singh, Mechanical Public Health Division, Ambala Cantonment.

70. *Possibilities of the use of mixed cultures of algae and protozoa for sewage purification*— (1) Prof. C. V. Ramakrishnan, Prof. C. H. Khadilkar, Dr. C. H. Pathak, M. S. University of Baroda, Baroda.

Research Schemes Terminated

1. *Electrical properties of textile materials (including artificial fibres)* —Shri A. Pande, Shri Ram Institute for Industrial Research, Delhi. (Feb. 28, 1962).

2. *Chemical modifications as in cellulose, based on cross linking reaction*—Dr. V. B. Chipalkatti, Director, Shri Ram Institute for Industrial Research, Delhi (Feb. 28, 1962).

3. *Ultra-soft X-ray diffraction of macro-molecules*--Dr. K. Das Gupta, Calcutta University, Calcutta (Feb. 28, 1962)

4. *Use of plastic theory for the design of statistically determinate and indeterminate steel structures*—Prof. S.C. Goyal, M.B.M. Engineering College, Jodhpur, (Feb. 28, 1962).

5. *Nature of electronics conduction in single crystals and thin films of metals of transition group*— Shri Krishnaji, University of Allahabad, (Feb. 28, 1962).

6. *X-ray and electron microscopic study*—Dr. V. D. Gupta, Allahabad University, Allahabad (Feb. 28, 1962).

7. *Influence of rare earth alloying on the low-temperature impact properties of low-alloy high-tensile steel made with electrolytic manganese*—General Manager, Tata Iron & Steel Co. Ltd, Jamshedpur (March 31, 1962).

8. *Solid state maser amplifier relaxation phenomenon in paramagnetic crystals*—Shri Krishnaji, University of Allahabad, Allahabad (March 31, 1962).

RESEARCH IN PROGRESS

National Laboratories

CFRI, JEALGORA

Efficiency of Coal Mixer—In order to evolve a satisfactory mixing device that will deliver a uniform mixture of coal blends to coke ovens, the influence of various factors, such as moisture content and grain size of the coals, their respective proportions in binary blends, and duration of rotation of the mixture, on the mixing efficiency has been studied. High and low volatile coals from Raniganj and Jharia coalfields were used for the studies.

The following salient results have been observed: (i) Moisture content of the coals largely affects the proximate analysis of the mixture; (ii) initial grain size of the constituents has a significant effect on the volatile matter; both ash and volatile matter are affected by the interaction of the number of revolutions given to the mixer and the grain size of the coal; (iii) change in the proportions of the constituents in binary blends has no significant effect on the proximate analysis of the mixture; (iv) there is no significant effect of the number of revolutions given to the mixer on the homogeneity of the mix, but if the number of revolutions per minute are below 50 the mix may not be satisfactory—D. SEN GUPTA, N.N. CHATTERJEE, A. GHOSAL & N.N. DASS GUPTA,

CFTRI, MYSORE

Fish Enriched Corn Starch—A process for the preparation of fish-enriched corn starch (protein, up to 40 per cent) free from anaerobic growth and *Bacillus coli* has been developed. The process consists in mixing fish muscle (from freshwater fish, shark or lean type of fish) with starch and sterilizing the blend with steam under pressure. The product is dried, finely powdered and sealed in containers. It can be utilized for preparing porridge, cutlets and curry preparations to supplement diets difficient in protein.

Fish Flour from Oil Sardine—A process has been developed for the preparation of deodourised fish flour from the oil sardine of low fat content (about 10 per cet or less). The product is free from *B. coli* and has no anaerobic growth. The process consists in eviscerating sardines, drying to a moisture content of about 5 per cent or less, and extracting with alcohol to yield deodourised flour. Unlike the convential process, the initial cooking and pressing is dispensed with in the process.

CECRI, KARAIKUDI

Production of Synthetic Cryolite—A process for the production of cryolite utilising hydrofluosilicic acid, a by-product in the manufacture of superphosphate, has been developed. The process consists in desilicating fluosilicic acid solution by passing ammonia under controlled conditions and reacting the resultant ammonium fluoride with sodium or potasssium aluminate. Tests undertaken at the Indian Aluminium Co. indicate that after reducing its silica content, the product may be used for producing high grade aluminium.

Potassium cryolite suitable for use in Defence departments has also been produced by a similar procedure. A unit capable of producing 50 lb. per batch of cryolite is being set up for supplying the product to the ordnance factories for field trials—V. ARAVAMUTHAN & P.S. DESIKAN.

NBG, LUCKNOW

Utilization of Argemone Oil—The dark coloured oil obtained from the seeds of *Argemone mexicana* (Bharband) is bitter and pungent due to the presence of alkaloidal principles. A method has been worked out for obtaining the oil, free from the toxic alkaloids (sanguinarine and dihydrosanguinarine). The method consists in extracting the alkaloids from the oil with a solvent mixture containing alcohol, acetic acid and water. The alkaloids recovered from the extract are obtained in the state in which they exist in the seeds. The resulting fat is satisfactory for being used in liquid soap stock, in making factice and similar products.

Palmitic acid (m. p. 57°.) can also be obtained in good yield during the processing—G. MISRA, C.R. MITRA & K.N. KAUL.

CSMCRI, BHAVNAGAR

Agar-agar from Seaweeds—A process for the extraction of agar-agar from seaweeds, *Gelidium* and *Gracilaria*, has been worked out. The product conforms to specifications laid down in the United States Pharmacopoiea. It has higher gel strength and better appearance than the products imported from America and Japan.

Sponsored Research

Spores of Aspergillus Niger—Germination of *A. niger* by oxygen absorption has been investigated. Dried spores of *A. niger* respire feebly when suspended in water, phosphate buffer or in aqueous spore wash, but when suspended in a synthetic sucrose medium supplemented with inorganic elements, a rapid and continuous increase in the uptake of oxygen is observed. The respiratory rate is the highest in a medium of *p*H 4 and least at *p*H 2. If the *p*H is maintained between 6.9 and 7.4 by the addition of extra phosphate, the oxygen uptake increases in the beginning and then decreases on the second day.

Alanine, methionine and glutamic acid stimulate oxygen uptake by germinating spores, but cysteine has a toxic effect. Heating of spores at 60°C. for 15 min. accelerates the rate of respiration and hastens mycelial formation.

Supplementation of the medium with Fe, Zn and Mn brings about slight increase in the uptake of oxygen. Both oxygen uptake and further germination changes of the spores are retarded by metabolic inhibitors such as flouride, iodoacetate cyanide, 2-4: dinitrophenol, arsenite and arsenate. The addition of malonic acid does not inhibit oxygen uptake and the addition of metaphosphate of varying molecular weights does not significantly alter the ratio of oxygen uptake by the spores.

Fresh spores are resistant to usual techniques of rupturing for the preparation of their aqueous extract. Using Petter-Elvehjem homogenizer, a higher degree of rupture, amounting to efficient extraction (about 90 per cent) of nitrogenous material and phosphates has been achieved.

The activity of the catalase in resting spores of *A. niger* (strain NRRL—599) is increased on rupturing the spores but decreases on germination. The enzyme activity is inhibited by azide and cyanide, but is less affected by fluoride. A characteristic property of the catalase of resting spores is its increased heat stability on cell-rupture. Aldolase, phosphoglucomutase and phosphohexoisomerase are active in spores after 18 hours of incubation in germinating medium—P.S. KRISHNAN, University of Lucknow, Lucknow.

PERSONAL

Appointments

SHRI K. L. WADHAVAN—Administrative Officer, CBG, Hyderabad (March 12, 1962).

SHRI A. C. JOHRI— Accounts Officer, NBG, Lucknow (Jan. 17, 1962).

SHRI P. S. NAGPAUL— Senior Scientific Officer: Grade II, CPHERI, Nagpur (March 12, 1962).

SHRI NARENDRA SINGH— Senior Scientific Officer: Grade II, NBG, Lucknow (Feb. 5, 1962).

DR. P.D. DOGRA—Junior Scientific Officer, NBG, Lucknow (Feb. 24, 1962).

DR. S. P. BHATNAGAR— Junior Scientific Officer, NBG, Lucknow (Feb. 26, 1962).

SHRI A. V. JOSHI— Junior Scientific Officer, CBRI, Roorkee, (March 9, 1962).

SHRI D. N. MITAL—Junior Scientific Officer, CBRI, Roorkee (March 16, 1962).

SHRI K. SUBBARAMAIAH— Junior Scientific Officer, CSMCRI, Bhavnagar (March 15, 1962).

DR P. V. SANKAR NARAIN— Pool Officer, CBG, Hyderabad (March 26, 1962).

Retirement & Resignation

Shri G.D. Taneja, Accounts Officer, NBG, Lucknow (Dec. 16, 1962).

Dr. B. S. Bassi—Officer on Special Duty, CRRI, New Delhi (March 15, 1962).

Deputations

DR. A. P. MITRA, Asst. Director, NPL, New Delhi—*U. K.* : Commonwealth Conference on Satellite Communications, London ; *Netherlands* ; Second Meeting of the Inter Union Committee on Frequency Allocation, Amsterdam ; *Sweden* : Visit to the Uppsala Observatory, Sockholm ; *U. S. A* : Plenary Meeting of the Committee on Space Research, Washington and visit to the Rensletter Polytechnic, New York, the Pennsylvania State University, and the Geophysical Institute, Alaska.

DR. S. MUKERJEE, Senior Scientific Officer, IIBEM, Calcutta—*Geneva* : Meeting of the Scientific Group of Cholera Research of WHO (April 2-7, 1962); *U. K.* : Visiting scientist on invitation by the British Council; *France, Denmark and West Germany* : Study tour.

Nominations

DR. V. SUBRAHMANYAN, Director, CFTRI, Mysore— Member, Soil Science Committee constituted by Indian Council of Agricultural Research, New Delhi.

DR. B. MUKERJI, Director, CDRI, Lucknow or his nominee—Member, Animal Diseases & Pests Committee of Indian Council of Agricultural Research, New Delhi.

DR. M. K. CHAKRABORTY, Asst. Director, CMRS, Dhanbad— Member, Local Health Week Committee constituted by Indian Medical Association, Dhanbad.

SHRI S. S. VERMA, Senior Scientific Officer, CGCRI, Calcutta—Member, Calcutta Productivity Council, Calcutta.

The following have been nominated member of the various committees of the Indian Standards Institution.

SHRI G. D. JOGLEKAR, Asst. Director, NPL, New Delhi— Chairman, Pencils Sectional Committee.

SHRI PREM PRAKASH, Asst. Director, NPL, New Delhi—Member, Machine Tools Sectional Committee.

Obituary

We regret to record the demise of Dr. G. I. Patel, Pool Officer, NBG, Lucknow on March 10, 1962.

PATENTS & PROCESSES

Patents Filed

79596: *A process for the preparation of calcium-based water soluble or dispersible proteins*—M. Srinivasan, CFTRI, Mysore.

81071: *Improvements in or relating to the recovery of nickel and fat from spent nickel hydrogenation catalyst*—M.N. Sankarashanamurthy & A.B. Biswas, NCL, Poona.

81072: *Improvements in or relating to the preparation or production of catalysts for the hydrogenation of organic substances with particular reference to fatty oils*—M.N. Sankarashanamurthy & A.B. Biswas, NCL, Poona.

81247: *An improved moulding device for the preparation of soil specimens for unconfined compressive strength test*—D.K. Sudd & A.K. Bhattacharya, Agra College, Agra.

81279: *Improvements relating to the process for insect-proofing of gunny bags for storage of foodgrains*—S.K. Majumdar, J.K. Kirshna Rao & H.G. Sethumadhavan, CFTRI, Mysore.

Patent Accepted

73065 : *Improvements in or relating to the use of cashewnut shell liquid in surface coatings*—M.A. Sivasamban, B. G. Murthy, J.S. Aggarwal & S. H. Zaheer (RRL, Hyderabad) and P.G. Sharma (NCL, Poona).

Patent Sealed

69986: *Improvement in or relating to aluminium paints*—Atma Ram, S.B. Roy & H.D. Sarkar, GCRI Calcutta.

NEW PUBLICATION

PROCEEDINGS OF THE SYMPOSIUM ON ELECTROLYTIC CELLS

pp. x +357; Royal 8vo Price: Rs. 5.00 (postage extra)

Copies available from:

Director, Central Electrochemical Research Institute, Karaikudi

Printed and published by Shri B.N. Sastri, Council of Scientific & Industrial Research, New Delhi at Asia Press, Delhi-6

R.N. 4212/5

CSIR NEWS

VOL. 12 NEW DELHI—APRIL 23, 1962 : CHAITRA 3, 1884 No. 8

LIBRARY 4.5.62

Prof. Thacker's Tour Abroad

Prof. M. S. Thacker, Secretary to the Government of India, Ministry of Scientific Research & Cultural Affairs and Director-General, Scientific & Industrial Research, is leaving New Delhi on April 29, 1962, on a five-week tour of Europe and Commonwealth African countries.

Prof. Thacker will proceed first to Geneva, where he will meet officials of the Executive Secretariat which the United Nations has set up for the U. N. Conference which will be held next year, 1963, on the Application of Science & Technology for the Developing Areas of the World. The U.N.O. has nominated Prof. Thacker as the President of the Conference.

From Geneva, Prof. Thacker will go to Paris for consultations with the UNESCO in his capacity as Chairman of the International Advisory Committee in the Natural Sciences, Department of the UNESCO. Prof. Thacker will also be proceeding to Prague in connection with the Central Machine Tool Design Institute and also the Design Institute of the Heavy Engineering Corporation. Prof. Thacker will proceed to London to have consultation with officials of the British Commonwealth Scientific Organisation and from London he will proceed to the Commonwealth countries in Africa including Ghana, Nigeria, Sierra Leone, Nyasaland, Rhodesia and Tanganyika to meet the authorities and to discuss with them proposals for scientific development in the several Commonwealth countries and also to exchange views on the questions that will come up before the British Commonwealth Scientific Committee (B.C.S.C.) which will meet in India in November 1962. Prof. Thacker is visiting these Commonwealth countries in his capacity as Chairman of the B.C.S.C.

Prof. Thacker is expected to return India on June 10, 1962.

Babcock-Hart Award for Dr Subrahmanyan

Dr V. Subrahmanyan, Director, CFTRI, Mysore, has been chosen for the Babcock-Hart Award for 1962, by the Institute of Food Technologists, Illinois, U.S.A.

The award, donated by the U.S. Nutrition Foundation, is to honour a person who has distinguished himself by his contributions to food science and technology that have resulted in improved public health through some aspect of nutrition or more nutritious food.

The award will be presented to Dr Subrahmanyan at the Institute of Food Technologists' Annual Meeting Awards Banquet at Miami Beach, U.S.A.

Prof Mark's Lectures at NCL

Prof. Herman Mark of Polytechnic Institute of Brooklyn, U.S.A., a leading international authority on polymer chemistry, will deliver a series of lectures at the National Chemical Laboratory, Poona, during April 25-27,1962. On April 25, he will deliver a popular lecture entitled, *Recent Progresses in Polymer Sciences.*

P E R S O N A L

Appointments

SHRI P. G. SARKAR—Senior Scientific Officer : Grade II, CMRS, Dhanbad (April 4, 1962).

SHRI HARISH SETHI—Junior Scientific Officer, CIMPO Zonal Office, Bangalore (March 17, 1962).

SHRI Y. P. GOEL—Clerk of Works, CMERI, Durgapur (March 22, 1962).

(Contd on p. 4, col. 1)

NPL, NEW DELHI—Prof. M.S.Thacker, Director-General, Scientific & Industrial Research receiving a collection of scientific books published in France from Mr. Jean Paul Garnier, Ambassador of France in India at a ceremony held on March 23, 1962. The books have been donated to the NPL library.

BRIEFS

Treatment and Disposal of Industrial Wastes

A symposium on 'Treatment and Disposal of Industrial Wastes and Recovery of By-products' organized by the Central Public Health Engineering Research Institute (CPHERI), Nagpur during April 9-10, 1962 at Kanpur was inaugurated by Shri M.P. Srivastava, Minister for Health, Uttar Pradesh. Shri R.S. Mehta, Director, CPHERI, presided.

Fifteen papers covering various aspects of the problem of treatment and disposal of effluents from textile mills, sugar factories, distilleries, rice mills, electroplating plants and tanneries were presented and discussed in four technical sessions.

About 100 engineers and scientists from various research institutions, municipal corporations and state governments attended the symposium.

Light Metal Industry in India

The proceedings of the symposium on 'Light Metal Industry in India', organised by the National Metallurgical Laboratory, Jamshedpur, during Feb. 14-17, 1961 have been published.

The 272-page publication includes 29 authoritative papers pertaining to availability of raw materials, recent trends and progress in production technology, scope for development of the industry, research in the field of light metals, applications of light metals, and studies on fundamental aspects.

Copies of the publication (price Rs. 18.00) are available from the Director, NML, Jamshedpur.

Scientific Instruments Register

The Central Scientific Instruments Organization (CSIO) has compiled a National Register of Scientific Instruments based on information collected on scientific instruments available in the CSIR laboratories. The information given in the register will be utilized to acquire spare parts for electrical and electronic instruments common to most laboratories and to efficiently equip the service units of the CSIO. The Organization will provide help to institutions having their own maintenance department by supplying spare parts which are not easily available and where necessary it will get the complete job done at its service units. One service unit of the CSIO, set up in the premises of the Delhi Polytechnic, will soon start functioning.

Daylight Distribution Charts

This five-page pamphlet along with 3 tables and 47-charts published by the Central Building Research Institute, Roorkee is useful for architects and others in estimating daylight levels inside buildings.

Copies of the publication (price Rs. 4.00) are available from the Director, CBRI, Roorkee.

Research Fellowships

The following have been awarded CSIR Fellowships for research in schemes noted against their names :

Senior Fellow

SHRI M.M. PATHAN—*Conductivity measurements of textile fibres by capacitance charge methods and evaluation of effects of different antistatic agents on the electrification of fibres* (M.S. Univeristy of Baroda, Baroda).

Junior Fellows

SHRI JAGDISH CHANDRA JOSHI—*Spectral studies on uranyl salts and their solution* (University of Rajasthan, Jaipur).

SHRI SATISH CHAND SHARMA—*Isolation of sapogenins from Indian plants and the possible transformation of steroidal sapogenins into harmones and the study of biogenesis etc.* (Aligarh University, Aligarh).

Visits

NAL, BANGALORE—Mr A.E. Woodward Nutt, Ministry of Aviation, London and Mr R. W. Gandy, Secretary, Aeronautical Research Council (U.L.), Teddington, England (March 26. 1962).

NML, JAMSHEDPUR and CFRI, JEALGORA—Dr A.N. Khosla, Member, Planning Commission and Dr K.P. Basu, Officer on Special Duty (Scientific Research), Planning Commission, New Delhi (April 2 and April 7, 1962 respectively)

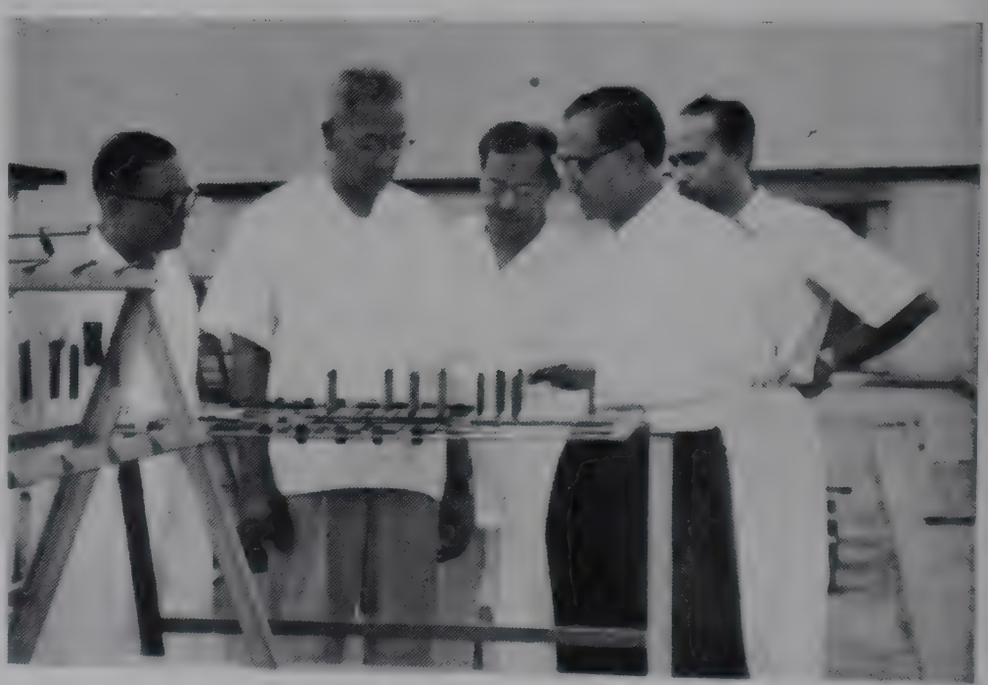
CLRI, MADRAS—Prof. Babbitt, Visiting Professor, University of Roorkee (April 2, 1962).

Research Papers

Aircraft airworthiness and safety in air transportation in India—P. Nilakantan, *Indian east. Engr*, 103 Anniversary Number, pp. 141.

Thermal performance of lightweight structures in tropics—B.C. Raychaudhuri, CBRI, Roorkee, *J. nat. build. Org.*, 6 (1962), 4.

Bricks from red soils—L.C. Jain & F.U. Ahmed, *J. nat. build. Org.*, 6 (1962), 4.



NML, JAMSHEDPUR—Dr. B.R. Nijhawan, Director, explaining to Dr. A.N. Khosla, Member, Planning Commission, the work on atmospheric corrosion on metals and alloys, during his visit on April 2, 1962

RESEARCH IN PROGRESS

National Laboratories

NML, JAMSHEDPUR

Corrosion of Monel Tubes—Factors responsible for the corrosion of monel tubes—used as heat exchanger in electrical transformers—have been studied with a view to establish the causes of premature failure of the tubes.

The corroded tubes were first physically examined for the extent of corrosion and nature of pits formed on the surface of tubes and then subjected to chemical analysis. The acid insoluble constituents of corroded tubes were found to contain 12-14 mg./dm² of carbon.

Investigations carried out so far indicate that (i) carbon film (derived from lubricant used in the drawing prosess) deposited on the surface of the tube during annealing acts as an active cathode and initiates corrosion, and (ii) hot spots created due to uneven transfer of heat through the exchanger accelerate the local corrosion attack.

CFRI, JEALGORA

Grindability of Coal—A high degree of correlationship between the values of Hardgrove Grindability Index (H. G. I.) of coals obtained by the A.S.T.M. and by B.S. sieves has been indicated by a statistical study. The corresponding linear regression equation has been obtained for determining the value of H. G. I. (A. S. T. M.) from that obtained using B. S. sieves. The H. G. I. (A. S. T. M.) is calculated by multiplying H. G. I. (B. S.) value with sieve ratio. The best predication has been obtained at sieve ratio 0.97. The H. G. I. values calculated from the equation closely agree with those determined experimentally.

The study has also shown that at a critical moisture content range, the H. G. I. of high moisture coals remains almost constant and that these coals are easy to grind within the critical range of moisture content —L. C. Roy, A. K. Chowdhury, P. Chakravarty & A. Lahiri.

CDRI, LUCKNOW

Stabilization of Vitamins—The effect of different vehicles and storage conditions on the stability of vitamins in pharmaceutical preparations has been under study.

Accelerated tests carried out at 50°, 60° and 70°C have been used for evaluating the shelf lives of vitamins B_1 and C in twelve different pharmaceutical formulations at 15°, 27° and 37° C. Rates of degradation of the vitamins at the higher tempratures reveal that the reactions are of pseudo first order. The percentage retention values of these vitamins after 12 months of storage at 27° equal the corresponding values for 6 months of storage at 37°C. Cysteine hydrochloride, propyl gallate and thiourea (0.05 per cent w/v) are equally efficient in stabilizing ascorbic acid in sorbitol and sorbitol-glycerol-water (2:2:1) vehicles. The stabilizing activities of these compounds with thiamine, however, are in the following order: cysteine hydrochloride, propyl gallate and thiourea.

The shelf life of different formulations containing vitamins B_1, B_2, B_6 and niacinamide in four different vehicles has been examined for one year at 37°C with special reference to incompatibility of B_1 with other B complex vitamins, air space, nature of vehicles and stabilizers. Vitamins B_2, B_6 and niacinamide are quite stable, whereas 50 per cent of vitamin B_1 deteriorates after storage for one year. The deterioration of vitamin B_1 in presence of vitamin B_2 is dependent upon the concentration of nicotinamide. Both vitamin B_6 and panthenol are compatible with vitamin B_1.

As a result of this study the concentrations of vitamins required for a stable B complex preparation in syrup : glycerol : water (2:2:1) base are : 1 mg. / ml. each of B_1, B_2 and B_6 and 5 mg. / ml. of niacinamide.

CSMCRI, BHAVNAGAR

Free Flow of Salt—Studies have been made to find out if the angle of repose of salt particles can be a satisfactory test for free flow of salt.

As free flow of salt is affected by absorption of moisture, the amount of moisture which does not interfere with free flow was studied as also the effects of anti-caking agents on the extent of moisture absorption at different degrees of humidity. The relationship between the angle of repose of salt particles and their rate of flow through an orifice was also evaluated. The studies indicate that determination of angle of repose is quite adequate for testing free flow of salt.

RRL, HYDERABAD

Surface Coatings from Castor Oil—A process has been developed and patented (Indian Pat. No. 69410) for preparing a resin for use as surface coating starting from castor oil, rosin, glycerol, sodium sulphate and a small quantity of maleic anhydride. The films of the varnishes prepared from the resin are pale in colour and possess good drying characteristics. They are fairly resistant to water.

Till now, this type of surface coating material, named Ricin varnish is not known to be manufactured in India or abroad. The process is ready for commercial exploitation. The equipment for setting up a commercial unit can be mostly fabricated locally—M.C. Menon, J.S. Aggarwal & S.H. Zaheer.

Beneficiation of Barytes—A simple centrifugal sedimentation method has been developed for up-grading off-coloured barytes available from Pulivendla Taluq (Andhra Pradesh) mines. The up-graded product is almost as good as snow-white barytes which is in great demand by paint, textile, paper and rubber industries and resources of which are limited in India.

Sponsored Research

X ray Studies on Proteins—Based on detailed structural studies of collagen, a stereochemically satisfactory structure of collagen with two hydrogen bonds for every three residues has been worked out. The structure explains all the important characteristics of collagen, such as inextensibility, chemical composition and infra-red dichroism.

A detailed study of the stereochemical criteria for polypeptide and protein structures has also been carried out and a new puckered chain structure has been proposed for the β-proteins. This structure is free from defects found in the structure proposed by Pauling and Corey.

Collagen and feather keratin exhibit remarkable resemblances in their infra-red spectra, birefringence and other optical properties. Based on these similarities between them a stereochemically satisfactory structure based essentially on the collagen triple helix has been proposed for the latter—G.N. RAMACHANDRAN, N.E. DWELTZ & B.R. LAKSHMANAN, Madras University, Madras.

PERSONAL

(Contd from p. 1, col. 3)

Promotions

SHRI K. M. KAISER—Senior Scientific Officer : Grade I, CMRS, Dhanbad (April 4, 1962).

SHRI L. A. CHATLIER—Junior Technical Officer, NPL, New Delhi—Workshop Superintendent, CMERI, Durgapur (March 20, 1962).

SHRI T. C. PATHAK—Junior Scientific Officer, CBRI, Roorkee (March 23, 1962).

Deputations

SHRI D. RAGHUNATH, Senior Scientific Assistant, NCL, Poona—*France*: Training in Rubber and Latex Technology under the Indo-French Technical Cooperation Agreement (9 months).

SHRI K. L. HANDA, Senior Scientific Officer, RRL, Jammu—Returned from Canada after completion of his training in Chemical Studies of Natural Products at the National Research Council, Ottawa.

Honours & Awards

DR M.S. KRISHNAN, Director, CBG, Hyderabad—Honorary Adviser, Mineral Development, Government of Gujarat.

DR K. N. SINHA, Officer on Special Duty, CMRS, Dhanbad—Member, Council of the Mining, Geological & Metallurgical Institute of India.

SHRI S. KUMAR, Senior Scientific Officer, CMERI, Durgapur—Awarded Burmah-Shell prize for his paper *Fatigue testing of full scale aircraft wing structures and estimation of safe services life* in joint authorship with Shri S. Ramamritham, adjudged best during 1960-61.

SHRI B.C. SINHA, Junior Scientific Officer, CGCRI, Calcutta—D. Phil. (Calcutta University), Thesis : *Polarographic studies on certain constituents present in ceramic systems.*

SHRI S. HAMSATH IBRAHIM, Senior Research Fellow, CSIR scheme, Indian Institute of Science, Bangalore—Ph.D. (Madras University), Thesis : *Physico-chemical studies relating to the process and plant development for the manufacture of ethylene oxide.*

SHRI V. V. MHASKAR, Junior Scientific Officer, NCL, Poona—Ph. D. (Poona University), Thesis : *Studies in the composition and utilization of vegetable waxes.*

Nominations

DR V. SUBRAHMANYAN, Director, CFTRI, Mysore or his representative—Member, Vegetable Oil Products Technical Committee, Ministry of Food & Agriculture

DR B.R. NIJHAWAN, Director, NML, Jamshedpur—Chairman, Advisory Council for Indian Members of the Institute of Metallurgists of the British Institute of Metallurgists (London) ; Corresponding Member, Council for India of the British Institute of Metals, London.

DR Y. NAYUDAMMA, Director (Principal Member) and Dr S. K. BARAT, Asst. Director (Alternate Member), CLRI, Madras—Veterinary, Parasitology and Zoology Committee, Indian Council of Agricultural Research, New Delhi.

DR. P. NILKANTHAN, Director, SHRI S. P. VENKETASWARAN, & DR. Y.V.G. ACHARYA, Asst. Directors and SHRI D.M. RAO, Senior Scientific Officer, NAL, Bangalore—Members, Panel of Experts of Inventions Promotion Board, New Delhi.

PATENTS & PROCESSES

Patent Filed

81402 : *Improvements in or relating to electrodeposition of metals by direct current electrolysis of aqueous solutions containing metal ions*—T. Banerjee & N. Dhananjayan, NML, Jamshedpur.

Patents Accepted

71864 : *Improvements in or relating to the production of alpha-halotoluenes*—S. Husain Zaheer, Baldev Singh, Bharat Bhushan, S. Iqbal Ahmed, I. K. Kacker, V. Krishanmoorthy & M. Zulfiqar Ahmed, RRL. Hyderabad.

72407 : *A process for the production of terpineol and terpin hydrate*—S.J. Hasan, Bharat Bhushan & S.H. Zaheer, RRL, Hyderabad.

Patents Sealed

69698 : *A process for the manufacture of 2-methyl-3-ortho-tolyl-4 (3H) quinazolone and its salts*—S.H. Zaheer & I. K. Kacker, RRL, Hyderabad

69621 : *Chlorinated alkylaryl phenols as pesticides*—B. C. Subba Rao & S.C. Sethi, NCL, Poona.

69919 : *A method for the preparation of guanidino-ethyl phosphate*—Radha Pant & S.S. Dubey, University of Allahabad, Allahabad.

70670 : *Improvements in or relating to the controlling of water evaporation for conserving water in lakes and reservoirs*—S.B. Kulkarni, M. K. Charpurey, N.R. Sanjana, A.V. Deo, K.O. Abraham & B.C. Subba Rao, NCL, Poona.

70319 : *Improvements in or relating to the process of preparing N-methyl taurine*—G. P. Thakar & B.C. Subba Rao, NCL, Poona.

71302 : *Improvements in electronic wattmeters for measuring high and low power*—S.S. Banerjee & A.B. Bhattacharyya—Banaras Hindu University, Varanasi.

71321 : *Improvements in the process for the preparation of hydrazine compounds*—E.R. Saxena, D.S. Datar & S.H. Zaheer, RRL, Hyderabad.

NEW PUBLICATION

SYMPOSIUM ON LIGHT METAL INDUSTRY IN INDIA

pp. 272, Demy 4to Price : Rs. 18.00 (postage extra)

Copies available from :

Director, National Metallurgical Laboratory, Jamshedpur

Printed and published by Shri B N. Sastri, Council of Scientific & Industrial Research, New Delhi at Asia Press, Delhi-6

R.N. 4212/5

24.5.62

CSIR NEWS

VOL. 12 NEW DELHI—MAY 14, 1962 : VAISAKHA 24, 1884 No. 9

CLRI Demonstration

Manufacture of water-proofed vegetable tanned sole leather by a process developed at the Central Leather Research Institute (CLRI), Madras will be demonstrated at the Institute during May 21-26, 1962. Representatives of leather industry and tanneries who wish to attend the demonstration may send their particulars to the Director, CLRI, Madras.

P E R S O N A L

Appointment

MAJ. Y. R. TIPNIS—Officer on Special Duty, IIP, Dehra Dun (Jan. 16, 1962).

Promotion

SHRI C.R. DOTIWALLA—Resident Superintendent, CSIR Sectt, New Delhi (May 2, 1962).

Resignation

SHRI A. D. KHANNA—Civil Engineer, CRRI, New Delhi (March 31, 1962).

SARVASHRI M. S. MURTHY and H.L. NARANG—Pool Officers, IIP, Dehra Dun (March 12, 1962).

Deputations

SHRI R.A. RAO, Senior Scientific Officer, and SARVASHRI ISHWAR CHANDRA & R.K. NIYOGI, Junior Scientific Officers, IIP, New Delhi—*France* : Advanced training at the French Institute of Petroleum, Paris, to study the following subjects respectively : Lubrication through radio tracers (9-12 months) ; crude oil evaluation and hydrodesulphurisation & hydrocracking (6-9 months).

DR K. SESHADRI, Senior Scientific Officer, CSMCRI, Bhavnagar—*Canada* : Training under Colombo Plan in processing methods of sodium sulphate from saline lakes common salt by solution, mining and work relating to setting up of potash industry (4½ months).

Awards

SHRI S.N. BHATTACHARYA, Senior Research Fellow, CSIR scheme, Indian Association for the Cultivation of Science, Calcutta—D. Phil. (University of Calcutta), Thesis : *Thermodynamic properties of binary liquid mixtures.*

MRS IRA GHOSH. Senior Research Fellow, CSIR scheme, University of Calcutta, Calcutta—D. Phil. (University of Calcutta), Thesis : *Cellular endocrinology of avian suprarenal medulla.*

Nominations

PROF. S. R. MEHRA, Director, CRRI, New Delhi—Member, Technical Committee on Low-Cost Roads of the Permanent International Association of Road Congresses.

DR S. HUSAIN ZAHEER, Director, RRL, Hyderabad—Member, ad-hoc Committee to consider the proposals for installation of solvent extraction pilot plants at RRL, Hyderabad and Oil Technological Institute, Anantapur.

SHRI DINESH MOHAN, Deputy Director, CBRI, Roorkee—Member, Committee of Soil Experts to explore the possibility of improving the stability of the existing bank at Varanasi ghats constituted by the Government of Uttar Pradesh.

DR A. JOGA RAO, Asst. Director, CECRI, Karaikudi—Member, Board of Studies in Chemical Technology constituted by the Andhra University, Waltair.

DR M. SRINIVASAN, Asst. Director, CFTRI, Mysore — Member, Sub-Committee of the Central Committee for Food Standards constituted by the Directorate General of Health Services, New Delhi and member, Sub-Committee to review the data collected by the Directorate of Marketing & Inspection on Ghee, Ministry of Food & Agriculture.

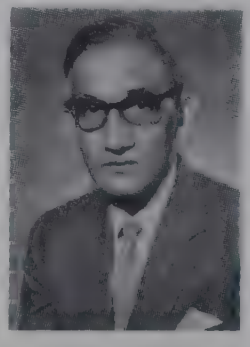
DR G.S. SIDDAPPA, Asst. Director, CFTRI, Mysore—Member, Central Fruit Products Advisory Committee constituted by the Ministry of Food & Agriculture.

DR N.L. LAHIRY, Asst. Director, CFTRI, Mysore—Member, Sub-

(*Contd. on p. 4 col. 2*)

Dr W. M. Vaidya

Dr W.M. Vaidya, has been promoted as Deputy Director-in-charge, National Physical Laboratory, New Delhi, with effect from April 21,1962.



Dr. Vaidya (*b.* Nov. 12, 1904 ; Hinganghat, Wardha Dist.) received his early education at Wardha, and higher education at the Science College, Nagpur, from where he graduated in 1925. After studying for a year at the Allahabad University under the late Prof. M.N. Saha, F.R.S., he proceeded to U.K. & joined the Imperial College, London. He obtained his B.Sc. (special) degree in Physics from the London University and Associateship of the Royal College of Science in 1929 and carried out research under the guidance of the late Prof. A. Fowler, F.R.S., the renowned spectroscopist. His efforts on the application of molecular spectra to combustion in hydrocarbon flames resulted in the discovery of hydrocarbon flame bands—now known as the 'Vaidya bands'. This work was recognised for the award of Ph. D. degree by the London University in July 1934.

Dr Vaidya then returned to India and continued his research on hydrocarbon flame bands in the laboratory of Prof. C. V. Raman, F.R.S., N.L., at the Indian Institute of Science, Bangalore. He was later appointed Professor of Physics, Fergusson College, Poona. Subsequently he held teaching posts in the Universities of Rangoon and Delhi. In 1946, on the initiative of the late Sir Alfred Egerton, Secretary, Royal Society, Dr Vaidya was deputed by the Council of Scientific & Industrial Research to undertake an investigation on the utilisation of the isotope

(*Contd. on p. 2, col. 2*)

B R I E F S

Electroplating of Aluminium

Electroplating of aluminium or its alloys by a process developed by the National Metallurgical Laboratory, Jamshedpur was demonstrated at the laboratory during April 18-21, 1962. Representatives of leading small scale industries and Small Industries Service Institutes attended the demonstration.

IIP Lectures

A six-week course of lectures, conducted by the Indian Institute of Petroleum for the engineers of the Barauni refinery, was inaugurated at New Delhi by Dr J.W. Whitaker, Director of the Institute on March 26, 1962. The course was instituted last year to give instructions to the engineers proceeding to Russia for training on processes and techniques used in a refinery. Lectures on specific subjects are being delivered by the staff of the Institute as well as by experts from private refineries.

The Institute also conducted similar series of lectures on petroleum chemistry, petroleum products and petrochemicals during April 4-7, 1962 for the benefit of the staff of the Ministry of Steel, Mines and Fuel.

Visits

CMRS, DHANBAD, CGCRI CALCUTTA and BITM CALCUTTA—Shri A.A. Chetani, Secretary, Pakistan Council of Scientific & Industrial Research April 7, 9 & 10, 1962.

NBG, LUCKNOW—A seven-member team of Japanese research workers, Asian University, Tokyo led by Prof. M. Fukasawa (April 12, 1962).

DR QUENTIN JONES of the New Crops Research Branch, Agricultural Research Service, U.S. Department of Agriculture, and DR. K.C. NAIK, Technical Adviser, PL-480 Programme (April 23, 1962).

BITM, CALCUTTA—Prof. Herman Mark, Dean of the Polytechnic Institute of Brooklyn, U.S.A. (April 17, 1962)

NAL, BANGALORE—Mr H. Wright Baker, Chief Unesco Adviser and Acting Director, CMERI, Durgapur and Mr T.B. Barlag, Unesco Expert in Materials and Structures, and Managing Director of the Norwagian Association for Mechanical Technology (April 18, 1962).

NML, JAMSHEDPUR—Set-up for electroplating of aluminium or its alloys

(*Contd from p. 1, col. 3*)
effect for determining the molecule-emitting hydrocarbon flame bands. On partial completion of the work, he was appointed, while in U.K., Assistant Director, Optics Division, National Physical Laboratory, New Delhi in Nov. 1949, and subsequently worked for six months at the National Physical Laboratory, Teddington. He returned to India in May 1950.

In addition to organising the normal work of the Optics Division, such as testing of optical instruments, photometry, colour measurement, spectroscopic analysis, microscopy, photomicrography, he has initiated research on vision, particularly on the minimum of light required to see coloured signals. In this field he has been rendering assistance to the Ministry of Railways and the Air Force and has set up an apparatus for measurement of colour matching functions of human eye and also designed an apparatus for the measurement of colour blindness. In recognition of this work, he has been appointed a member of the editorial board of *Vision Research*, an international journal of vision.

Quantitative estimation of trace elements in human blood and tissues by spectroscopic methods with particular reference to manganese has been another field of Dr. Vaidya's investigations.

Dr. Vaidya is a recognised authority on spectroscopy applied to combustion phenomena and has published several papers on the subject. He is a member of the editorial board of the *Journal of Quantitative Spectroscopy* and *Radiative Transfer Spectroscopy*. He was elected Fellow of the National Institute of Sciences of India in 1953 and an Associate Member of the Commission Internationale de 'Leclairage in 1961. He has also been elected a Foreign Member of the American National Research Council Committee on Vision in April 1962.

Research Papers

An iterative method for obtaining statistical frequency distributions from limited experimental data—P. Nilakantan & B.N. Narahari Achar, NAL, Bangalore. *Nature, Lond.*, **193** (1962), 1005-06.

Effect of wall divergence on sonic flows in solid wall tunnels—D. Tirumalesa & B. Satyanarayana, NAL, Bangalore. *J. roy. aeronaut. Soc.*, **66** (1962), 125-28.

Post-rigor changes in nitrogen distribution and texture of fish during storage in crushed ice—M.N. Moorjani, B.R. Baliga, B. Vijayaranga & N.L. Lahiry, CFTRI, Mysore, *Food Tech. Campaign*, **16** (1962). 80-88.

RESEARCH IN PROGRESS

National Laboratories

NML, JAMSHEDPUR

Up-grading of Limestone—Comprehensive laboratory tests were undertaken on the beneficiation of limestone samples, obtained from Messrs *Tata Iron & Steel Co. Ltd.* As the results were encouraging pilot plant trials were also carried out.

The process followed consists of grinding the limestone (assaying CaO, 45.28; SiO_2, 7.8; MgO, 3.1; Al_2O_3, 1.9; and Fe_2O_3, 1.1 per cent) and applying froth floatation, using oleic acid as collector and sodium silicate as depressant of silicate gangue. A concentrate (analysing CaO, 50.49; SiO_2, 2.5; MgO, 3.1; Al_2O_3, 1.01; and Fe_2O_3, 0.68 per cent) has been obtained with a recovery of 95.08 per cent showing that the process is feasible for reducing silica content. The concentrate can be economically agglomerated to yield strong briquettes for use as metallurgical flux in steel making.

CFRI, JEALGORA

Low Temperature Carbonisation Plant—An inexpensive technique for increasing (more than 60 per cent of its normal capacity) the throughput of the prototype low temperature carbonisation plant (*CSIR News*, Vol. 10, No. 22, p.1), has been developed. The technique which consists in recirculation of gas through the retorts, also ensures increased yield of coke and gas of higher calorific value. Adoption of this technique is expected to bring considerable saving in installation cost and consequently lower cost of production.

Several reputed foreign firms are negotiating for licence for building such plants on commercial scale in India. Proposals for building two plants in West Bengal, one in Bihar, one in Orissa and one in Madhya Pradesh, by both public and private sector organizations, are under consideration.

CFTRI, MYSORE

Meat Extract and Hydrolysate—Studies have been in progress for the preparation of meat extract and meat hydrolysate by an integrated process. These products are at present imported.

The process for preparation of meat extract consists in boiling minced meat in water, filtering the broth and concentrating. The hydrolysate is obtained by hydrolysing the residual meat with papain. By this process, meat hydrolysate in concentrated and powder form can be prepared.

Studies have shown that it is possible to prepare meat soup cubes which simulate imported bouillon cubes, utilising meat extract and meat hydrolysate as bases. By using a similar process, a hydrolysate which is close to commercial 'essence of chicken' for use in nutritional therapy can also be prepared.

Dehydrated Mutton Mince—A method for the preparation of dehydrated mutton mince has been standardised. The minced mutton is cooked and chilled or frozen to improve the tenderness of the reconstituted product. It is then dehydrated in through-flow drier up to 3-4 per cent moisture content; the use of cross-flow drier is not suitable. The product which contains less than 25 per cent fat can be stored for 6 months at 37°C. when packed under nitrogen.

NBG, LUCKNOW

Vertical and Portable Gardens—A method and technique of developing vertical and portable vegetable and flower gardens have been developed and a model garden established for practical demonstration to interested parties. These gardens are economical and can be developed in home or outside using common home refuse and garden waste. The technique may also be used for developing portable flower beds, lawns, hedges, rockeries baskets, stumps, ornamental logs, twigs, vases, trays for indoor and out-door decoration and presentation articles.

More than 20 shade loving plants and 66 semishade and sun loving plants can easily be developed in portable rockery and about 50 vegetables thrive well in portable and vertical gardens. Some crops such as wheat, paddy, maize and sugarcane can also be grown.

RRL, JAMMU

Ergot Cultivation—Ergot with alkaloid content conforming to Indian Pharmacopoeia has been cultivated at Jammu. Cultivation studies have shown that a yield of 287 lb. of ergot per acre can be obtained under favourable conditions.

The best time of sowing rye and inducing artificial infection is middle of September and January-February. Addition of cane sugar (7.5 per cent) to spore suspension markedly increases the efficiency of artificial infection resulting in higher yields of ergot.

Sponsored Research

Coke from Low-grade Coals—The possibility of preparing metallurgical

NBG, LUCKNOW—A view of the vertical and portable gardens

grade coke from high volatile weakly coking coals from South Karanpura and Raniganj coalfields in admixture with low volatile coals from Jharia coalfield and washed coals from Kargali and Jamadoba Central Washeries has been examined by conducting pilot oven and full scale oven tests.

Tests with blends of washed Argado Top seam coal (South Karanpura coalfield), Jharia low volatile coal and Kargali washed coal having grain size 80 per cent through 3 mm. indicate that the blend in the ratio of 15:35:50 produces medium hard coke (according to Breslau Index). Finer crushing of charging coal does not improve the quality of coke.

Pilot oven tests with blends of Raghunathbutty seam coal (Raniganj coalfield) and Kargali washed coal indicate that (i) medium hard coke is obtained when the blend contains 25-30 per cent of Raghunathbutty seam coal, having grain size of blend 80 per cent through 3 mm. and (ii) hard coke is obtained when the charging coal in above proportion is crushed to grain size 100 per cent through 3 mm.

Tests with high volatile coal from the Raniganj coalfield inadmixture with low volatile coal from the Jharia coalfield with the application of 'Sovaco Process' indicate that in general 20-30 per cent of high volatile semi-coking coals are usable in blends with good coking coals; selective crushing of blending coals improves the quality of coke.

Blends (30:70) of Hatnol seam coal and washed coal from Jamadoba Central Washery (grain size 80 per cent through 3 mm.) produce medium hard coke. The blends when subjected to selective crushing with the application of 'Sovaco Process' yield hard coke.

The effect of addition of oil on the bulk density of charging coal has been studied with Tatas' coke oven coal mixture. The pilot and full scale oven tests show that bulk density of the charging coal increases by about 10 per cent on addition of 0.50 per cent each of diesel oil, Stanfuel oil and special coke oven oils (light and heavy) without affecting the physical properties of coke—COKE BLENDING COKING RESEARCH SCHEME, Jamshedpur.

PATENTS & PROCESSES

Patents Filed

81404: *Improvement in a pneumatic basic lined side-blown vessel for the conversion of phosphorous containing pig irons into high grade steels*—M.J. Shahani & Upkar Singh, NML, Jamshedpur.

Patents Accepted

71818: *Improvements in or relating to the manufacture of sodium carboxymethyl cellulose*—V.B. Chipalkatti, K. Manivannan, H.R. Chipalkatti & A.S. Jaffal—Shri Ram Institute for Industrial Research, Delhi.

71948: *Improvements in or relating to a process for the manufacture of ethylene chlorohydrin*—R.T Thampy, N.R. Kuloor, Mrs Kanti Kathpalia & C.D. Anand—Shri Ram Institute for Industrial Research, Delhi.

72444: *Antimony-free white enamels*—Atma Ram & S.S. Verma, —CGCRI, Calcutta.

73066: Preparation of road tar from primary tars— B.S. Narayan Rao, R. Vaidyeswaran, D.P.Agarwal, M. Ehsan, M.G. Krishna & S.H. Zaheer, RRL, Hyderabad.

74450: *Improvements in or relating to the manufacture of maleic anhydride*—B.S. Trehan & R.T. Thampy, Shri Ram Institute for Industrial Research, Delhi.

U.K.

894638: *A process for the preparation of dihydrojasmone*—J.H. Amin & S.C. Bhattacharyya, NCL, Poona.

Patents Sealed

68611: *A new device for generating electrical power from the atmosphere*—A.U. Momin, NCL, Poona

70049: *Manufacture of vegetable milk powder*—N.L. Lahiry, L. V. L. Sastry, S.R. Shurpalekar, M.R. Chandrasekhara, M. Swaminathan & V. Subrahamanyan, CFTRI, Mysore.

70169: *Improvement relating to the method of preparation of anhydrous magnesium chloride*—H. C. Gaur & W.K. Behal, University of Delhi, Delhi.

70175: *A method for the preparation of some 1,2,3,4-tetrahydroquinolines*—G. Thyagarajan, G.S. Sidhu & S. H. Zaheer, RRL, Hyderabad.

71285: *Improvements in the method of manufacture of acetaldehyde* — J. K. Mahendra, V. V. Deshpande, & N.R. Kuloor, Shri Ram Institute for Industrial Research, Delhi.

71979: *An improved process for the manufacture of monoglycerides*—R.K. Kochhar & R.K. Bhatnagar, Shri Ram Institute for Industrial Research, Delhi.

PERSONAL

(*Contd. from p. 1. col. 2*)

Committee to examine measures for development of Meat Technology constituted by the Ministry of Food & Agriculture.

DR G.M. VYAS, Senior Scientific Officer, NCL, Poona—Member, Technological Research Sub-Committee of the Indian Central Cotton Committee, Bombay.

The following have been nominated member of the various committees of the Indian Standards Institution.

DR K. N. MATHUR, Director (Principal Member) and SHRI S. K. SURI, Senior Scientific Officer (Alternate Member), CSIO, New Delhi—Laboratory Glassware Apparatus Sectional Committee.

DR. J.W. WHITAKER, Director (Principal Member), and Mr. M. FLAMAND, French Expert, (Alternate Member), IIP, Dehra Dun —Bitumen & Tax Products Sectional Committee, Methods of Testing Sub-Committee, and Bitumen Sub-Committee.

SHRI N.N. DAS GUPTA, Asst. Director, (Principal Member) and Dr. K.Y. SHRIKHANDE, Senior Scientific Officer (Alternate Member), CFRI, Jealgora—Soft Coke Sub-Committee.

SHRI J.C. BANERJEE, Asst. Director, CGCRI, Calcutta— Methods of Sampling Sectional Committee.

SHRI PREM PRAKASH, Asst. Director, NPL, New Delhi—Screw Threads Sectional Committee.

SHRI P. K. GUPTE, Asst. Director NML, Jamshedpur — Automotive Vehicles Sectional Committee.

SHRI T. V. RAMAMURTHI, Officer on Special Duty, NPL, New Delhi—Convener, Panel for Safety of Electric Equipment.

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MODERN TRENDS IN DRUG THERAPY

A symposium on 'Modern Trends in Drug Therapy of Metabolic and Allied Disorders' will be held in the Central Drug Research Institute (CDRI), Lucknow, sometime in October 1962. The scope of the symposium will cover the following aspects.

(1) *Atherosclerosis and Coronary Heart Disease* — Experimental: Pathogenesis of experimental atherosclerosis; drugs in the treatment of experimental atherosclerosis. Clinical: Role of diet on the incidence of atherosclerosis and coronary heart disease, recent advances in the diagnosis and management of coronary heart disease, and cerebral and other manifestations of atherosclerosis.

(2) *Diabetes*—Experimental diabetes and testing of drugs; clinical diabetes and experience with recent drugs or newer insulins and oral antidiabetics.

(3) *Inborn Errors of metabolism*

(4) *Peptic Ulcer*—Experimental: Pathogenesis of experimental, acute and chronic ulcers, drugs in treatment of experimental peptic ulcer. Clinical: Incidence, aetiology and pathogenesis of peptic ulcer, and recent advances in the diagnosis and treatment of peptic ulcer.

Intending contributors are requested to send abstracts of original papers (in duplicate) to the Director, CDRI, Lucknow before September 15, 1962. Full papers should reach him by October 15, 1962.

Prof. Mark's Lectures at NCL

Prof. Herman Mark, Director, Polymer Research Institute of Brooklyn, U.S.A., delivered a series of five lectures at the National Chemical Laboratory, Poona during April 25-27, 1962. (*CSIR News*, Vol. 12, No. 8, p. 1).

In his inaugural lecture on 'Recent Advances in Polymer Science and Technology', Prof. Mark outlined the modern trends in the preparation of new types of polymers with controlled structures tailor-made to suit a variety of applications such as elastomers, high temperature resistant materials, etc. The lecture was highlighted by the actual demonstration of the production of polyamides by interfacial polycondensation, flame resistance of cyclised polyacrylonitrile, elastomeric properties of polyisoprenes and polybutadienes of different structures, some new copolymers and articles made out of them.

The other four lectures dealt with the synthesis of polymers by various mechanisms, their characterisation, determination of their molecular weight and steric structural details, and the physical and mechanical properties of polymers which make them useful as elastomers, fibres or plastics.

Representatives of various industries, research laboratories and universities attended the lectures and participated in the discussions which followed each lecture.

PERSONAL

Appointments

DR. S.K. ROY—Senior Technical Officer: Grade I, National Register Unit, CSIR, New Delhi (April 2, 1962).

SHRI N.C. MODY—Civil Engineer (Structural), CSIR, New Delhi (April 2, 1962).

SHRI J. N. SONDHI—Civil Engineer, CSIR, New Delhi (May 4, 1962).

DR. S.L. KOLHATKAR—Pool Officer, NML, Jamshedpur (March 12, 1962).

SHRI NATWAR G. DAVE—Junior Scientific Officer, CBRI, Roorkee (April 11, 1962).

Promotion

DR. L.D. KAPOOR—Senior Scientific Officer, Grade I, RRL, Jammu (May 3, 1962).

(*Contd. on p. 2, col. 2*)

NCL, POONA—Prof. Herman Mark pulling out the polyamide rope

BRIEFS

Prof. Thacker Signs Agreement for Machine Tool Institute

Prof. M. S. Thacker, Secretary, Ministry of Scientific Research and Cultural Affairs and Director-General, Scientific & Industrial Research, signed in Prague on May 11, 1962 an agreement on behalf of the Government of India with the Technoexport of Czechoslovakia for collaboration in setting up a central machine tools institute at Bangalore.

Symposium on Mechanisation of Mines

The proceedings of the symposium on 'Mechanisation of Mines in India' held at the Central Mining Research Station, Dhanbad, during Dec. 9-12, 1961 have been published as Special Issue of the Journal of Mines, Metals & Fuels.

The 668-page publication includes eighty papers under the following sections : (i) wining, methods of work and detailed mining operations; (ii) transport; (iii) ventilation, blasting and allied subjects; (iv) supports and roof control; and (v) safety and control techniques in mines.

Visits

NML, JAMSHEDPUR—Prof. Sudjono Pusponegoro, Minister for National Research Republic Indonesia and Prof. Sarwono Prawirohardjo, Chairman, Council of Science Indonesia (May 5, 1962.)

CGCRI, CALCUTTA—Mr. Eneli, Deputy Permanent Secretary, Government of Nigeria (April 7, 1962); Mr. M. J. Ridge, Officer-in-charge, Gypsum Plaster Investigations, Commonwealth Scientific Research Organisation, Victoria, Australia (May 2, 1962); and a six-member National Productivity Study Team (May 2, 1962).

NAL, BANGALORE—Academician A.N. Kolmogorov of the University of Moscow, an international authority on Statistical Theory of Turbulence (May 9, 1962).

RRL, HYDERABAD—Shri Maqsood Ali Khan, Deputy Minister for Mines & Geology, Government of Mysore (May 3, 1962).

PERSONAL

(Contd from p. 1, col. 3)

Resignations

SHRI B. K. AGRAWAL—Junior Scientific Officer, NML, Jamshedpur (March 15, 1962).

SHRI D. S. VERNEKAR,—Junior Scientific Officer, CPHERI, Nagpur (April 30, 1962).

SHRI R. SRINIVASA RAO—Accounts Officer, NML, Jamshedpur (April 20, 1962).

SHRI S.K. BASAK—Pool Officer, NML, Jamshedpur (March 9, 1962).

Deputations

SHRI R. S. MEHTA, Director, CPHERI, Nagpur—Holland, Denmark, U. S. A., Mexico, U.K., Germany, Switzerland, France, Italy, Yugoslavia and U.S.S.R.: Visiting public health engineering research institutions and attending conferences on: (i) Development in sewage disposal at Cincinnati, Ohio; (ii) Conference of the Association of Inter-American Sanitary Engineers, Washington; (iii) Water pollution research, London, and (iv) International Conference on water standards, Geneva (May 19 to Sept 17, 1962).

SHRI M.S. CHOPRA, Senior Scientific Officer, NML, Jamshedpur—Returned from U.K. after completion of his training in X-ray techniques especially X-ray Fluorescent Spectroscopy and X-ray Diffraction at the Imperial College of Science & Technology, Royal School of Mines, London.

DR. S. MUKERJEE, Senior Scientific Officer, IIBEM, Calcutta—Returned from Geneva after participating in the meeting of the WHO Scientific Group on Cholera Research and completion of study tour to France, Denmark and West Germany. He also visited important centres of microbiological research in London, Cambridge and Edinburgh at the invitation of the British Council.

Honours & Awards

DR. ATMA RAM, Director, CGCRI, Calcutta—Fellow, Indian Chemical Society, Calcutta.

SHRI K. D. SHARMA, Deputy Director, CGCRI, Calcutta—Fellow, Society of Glass Technology, Sheffield and Hony Secretary, Indian Ceramic Society.

DR. S. KUMAR, Senior Scientific Officer, CGCRI, Calcutta—Hony Editor, Indian Ceramic Society.

DR. D.K. ROY, Senior Scientific Officer, IIBEM, Calcutta—Fellow, Institution of Chemists, India.

SHRI K. C. MATHUR, Junior Research Fellow, CSIR scheme (Investigator-in-charge Dr. G. S. Saharia)—Ph. D. (University of Delhi), Thesis: *Synthetic Studies in the Cycloheptane Series*.

Nominations

DR. B. MUKERJI, Director, CDRI, Lucknow — Member, Reviewing Committee, Bose Institute, Calcutta

DR. J. W. WHITAKER, Director, IIP, Dehra Dun—Member, Board of Postgraduate studies in Engineering and Technology, Ministry of Scientific Research & Cultural Affairs, New Delhi.
buildings.

The following have been nominated members of the various committees of the Indian Standards Institution:

DR. J. W. WHITAKER, Director, IIP, Dehra Dun or his nominee—Petroleum Products Sectional Committee; Methods of Test for Petroleum, Petroleum Products & Lubricant Sectional Committee; and Petroleum Measurements Sectional Committee.

SHRI P.K. GUPTE, Asst. Director, NML, Jamshedpur—Steel Tubes, Pipes and Fittings Sectional Committee, and Automotive Vehicles Sectional Committee.

SHRI J.C. BANERJEE, Asst. Director, CGCRI, Calcutta—Methods of Sampling Sectional Committee.

SHRI R. M. KRISHNAN, Asst. Director, NML, Jamshedpur—Methods of Sampling Sectional Committee.

SHRI S. S. BHATNAGAR, Senior Scientific Officer, NML, Jamshedpur—Utensils Sectional Committee, and Stainless Steel Utensils Sub-Committee.

SHRI N.V. RAMAN, Senior Scientific Officer, CBRI, Roorkee—Precasting and Prefabrication Sub-Committee.

SHRI JOSEPH GEORGE, Senior Scientific Officer, CBRI, Roorkee—Non-cement Floors and Roof Coverings Sectional Committee; and Paints and Allied Products Sectional Committee.

RESEARCH IN PROGRESS

National Laboratories

CDRI, LUCKNOW

Obesity and Metabolic Disorders—Effect of obesity on the production of various metabolic disorders (like diabetes mellitus, atherosclerosis and arthritis) is being studied by inducing hyperphagia in albino rats.

Experimental hyperphagia in animals was produced by feeding them on high fat (40 per cent) diet and giving regular injections of insulin. Preliminary studies on the blood of obese animals indicate a progressive rise of fasting blood values and increased excretion of food nitrogen associated with increased non-esterified fatty acid and keto-body levels.

CLRI, MADRAS

Toy Leather—A dry-tanning process for preparing leathers from kid skin suitable for toy manufacture has been developed. These leathers are washable and largely retain beauty and gloss of original skin. The process is simple and can be used by cottage scale tanners.

RRL, HYDERABAD

Pyrometric Cones—Standard pyrometric cones—used by ceramic industry for measuring furnace temperatures—suitable for use up to 1650°C. have been produced at the Laboratory and supplied to ceramic industry.

The suitability of these cones for determination of pyrometric cone equivalent (PCE) in different temperature range has been investigated. Studies have indicated that these cones can be satisfactorily used in place of the similar imported material for carrying out PCE tests as specified by the Indian Standards Institution.

CPHERI, NAGPUR

Defluoridation of Drinking Water—A higher level of fluoride in drinking water causes endemic fluorisis in human beings and cattle.

The Institute has developed a process for reducing excessive amounts of fluorides in water to optimum level (0.8 to 1.5 mg./litre). The process consists in passing water through a bed of activated carbon, prepared by soaking saw dust carbon in 2 per cent alum solution. The carbon has an efficient selectivity for fluorides with an average capacity of 350 mg./kg., it can be regenerated by treating with 1 per cent alum solution.

Based on the process, a domestic defluoridation unit (capacity, 15 gal.) which can cater to the needs of a small family for drinking and cooking purposes has been designed and fabricated.

Installation of a pilot plant at Loharu (Panjab State), where fluoride content of water is more than the permissible limit, is contemplated for treatment of water for a population of about 4.000.

CBG HYDERABAD

Magnetometer Survey—As a preliminary to the proposed detailed survey of the Godavari valley, the area between Yellandlapad and Kottagudem (Singareni collieries area) has been surveyed using Schmidt type vertical magnetometer.

The rock formations in the area from Yellandu towards Kottagudem are: granite gneisses, marble, quartzites, phyllites, hornblende schists, shales and sandstones.

The survey reveals that in general the various rock formations underneath are not distinguishable by magnetometer due to their low susceptibility contrast. However, anomalies have been recorded at a few places due to the predominance of magnetite-rich rocks. The survey also indicates the approximate relief of the underlying basement, which becomes deeper towards Kottagudem

Sponsored Research

Heat Resistance of Bacillus subtilis—Effect of metals and different nitrogen and carbon sources on the growth, spore formation and heat resistivity of the spore of *Bacillus subtilis* has been studied to evaluate the process-time and temperature relationship for canned vegetables when *B. subtilis* is the predominant spoilage organism.

The rate of spore formation in zinc-deficient media is hindered but little or no change in the rates of germination and growth of vegetative cells are observed. Heat resistance of the spore is also lowered. Manganese-free media retard growth and spore formation but the heat resistance of spores is not affected. Very little growth and no spore formation is observed in a medium free from magnesium. Deficiency in potassium does not interfere with growth, sporulation and heat resistance of the spores.

Of the different carbon sources, glucose, fructose, sucrose, arabinose maltose, starch, galactose and lactose) used in the study, glucose proved to be the best carbon source for spore growth, and starch showed the poorest response. The heat resistance of spores obtained from different carbon sources is similar.

Among the different nitrogen sources (glutamic acid, asparagine, glycine, proline, valine, isoleucine, cystein, methionine, tryptophane, arginine, creatine and ammonium oxalate) tried in the study, only glutamic acid, asparagine, arginine and proline supported growth and sporulation. Cystein and valine induced germination but failed to cause subsequent spore formation. The rates of germination, growth and subsequent spore formation were different in different cases and low in comparison to those grown in nutrient broth. The heat resistance of the spores grown in media containing proline, arginine or glutamic acid as nitrogen source was more or less the same as that of the spores grown in nutrient broth, but heat resistance of the spores grown in the media containing asparagine was higher than that of the spores grown in nutrient broth—S.K. MUKHERJEE & A. CHATTERJEE, University, College Engineering & Technology Jadavpur University, Calcutta.

Physico-chemical Studies on Pulse Proteins—Electrophoretic separation of proteins of Indian pulses (*til*, green gram, red gram, black gram and Bengal gram) has been carried out using Kern's moving boundary electrophoresis apparatus. Their amino acid composition has also been determined by paper chromatographic technique.

The optimum ionic strength for the separation of pulse proteins is 0.10. In *til* meal, maximum electrophoretic separation into one major and three minor protein components is observed between *p*H 6.4 and 8.0. The contents of essential

amino acids like leucine, isoleucine and valine vary in different components. The electrophoretic study of green gram shows that optimum separation into one major and three minor protein components is observed between *p*H 7.7 and 10.1. The protein is deficient in sulphur-containing amino acids, histidine and tyrosine, whereas leucine and isoleucine are present in greater amounts. In red gram meal, maximum separation occurs between *p*H 7.0 and 8.6, yielding one major and two minor protein components deficient in sulphur-containing amino acids and histidine, but rich in lysine. A trypsin inhibitor has also been isolated and characterised in red gram meal. Study on black gram meal reveals an optimum separation between *p*H 8.0 and 9.0 into one major and three minor protein components which are deficient in sulphur-containing amino acids, but rich in histidine and lysine.

In the case of Bengal gram, five electrophoretically distinct protein components poor in sulphur-containing amino acids and tyrosine are obtained between *p*H 8.0 and 9.0. The contents of essential amino acids like proline, valine, threonine, phenylalanine and lysine in these components are higher than those in the meal—H.R. CAMA, Indian Institute of Science, Bangalore.

Research Papers

Studies on altered sillimanite rock from Rewa, Madhya Pradesh : Part I —Mineralogy and origin — J. C. Banerjee & N. R. Sircar, CGCRI, Calcutta, *Trans. Indian ceram. Soc.*, **22** (1961), 101.

Application of the method of finite differences for the analysis of a conoid shell using the bending theory—M.N. Keshava Rao & S.P. Sharma, CBRI, Roorkee. *Indian Concr. J.*, **36** (1962), 84-92.

Building materials from industrial wastes—H. Williams, CBRI, Roorkee. *Indian east. Engr*, **103** Anniversary Number (1962), 51-54.

Further contribution to the flora of Pachmarhi region—S.L. Kapoor & Hira Lal Yadav, NBG, Lucknow. *Indian For.*, **88** (1962), 272-76.

Preferential separation of non-glyceride constituents and simultaneous purification of the seed lipids—Y.C. Awasthi, C.R. Mitra & K.N. Kaul, NBG, Lucknow. *Indian Oilseeds J.*, **6** (1962), 38-42.

Pollen grains in Indian specimens of *Caltha palustris*—P.K.K. Nair, NBG, Lucknow. *Grana Palynologica*, **2** (1961), 98-100.

Morphology of the gametophyte and young sporophyte of Matteuecia (HK) Trev—B.K. Nayar, NBG, Lucknow. *J. Indian bot. Soc.*, **40** (1961), 502-10.

Penetration tests for deep footing —Virendra Kumar & G. S. Jain, CBRI, Roorkee. *J. Indian nat. Soc. Soil Tech. Found. Engng*, **1** (1962), 55-65

Steam curing of clinker concrete blocks—S.S. Reshi & S.K. Garg, CBRI, Roorkee, *Indian Concr. J.*, **36** (1962), 149-51.

PATENTS & PROCESSES

Patents Filed

India

82189 : *Production of dextro-tartaric & oxalic acids*—H.G. Vartak, S.G. Patil & V. Jagannathan, NCL, Poona.

82191 : *An improved jacketted electrolytic cell for the electro-deposition of metals and metallic oxides in general and manganese dioxide in particular*—M.J. Shahani & T. Banerjee, NML, Jamshedpur.

82192 : *An apparatus for the collection of atmospheric pollen and spores*—P.K.K. Nair & K.N. Kaul, NBG, Lucknow.

U.S.A.

183594 : *Extraction of tar acids from tar oils like mixtures containing them*—D.K. Sen, C.S.B. Nair, A.N. Basu & A. Lahiri, CFRI, Jealgora.

Patents Accepted

India

72639 : *A method of making yellow coloured bricks from alluvial soils*—L.C. Jain & P.C. Jain, CBRI, Roorkee.

74596 : *A process for the production of middle distillates such as illuminating fuels (kerosene substitutes), and diesel fuels from coal tar and fractions thereof*—M.G. Krishna, R. Vaidyeswaran, B.N. Rao, M.J.A. Khan & S. H. Zaheer, RRL, Hyderabad.

Process Leased Out

The process of 'Hot dip aluminising of ferrous materials' (Indian Pat. Nos 55289, 57938 and 65230) developed by the National Metallurgical Laboratory, Jamshedpur has been further leased out to (i) *Rungta Engineering & Construction Co.*, Calcutta, and (ii) *Lath & Company*, Calcutta.

MECHANISATION OF MINES IN INDIA

Proceedings of the symposium held at the Central Mining Research Station, Dhanbad in December 1961

(Published as Special Issue of the Journal of Mines, Metals & Fuels)

Pp. LXXVI+668; Demy 4 to; Price Rs. 45

Copies available from :

Managing Editor, Journal of Mines, Metals & Fuels,
6/2, Madan Street, Calcutta-13.

In Parliament

Research Stations for Fruits and Vegetables Preservation—Prof Humayun Kabir, Union Minister of Scientific Research & Cultural Affairs and Vice-President, Council of Scientific & Industrial Research in reply to a question by Shri Mahabir Dass told the Rajya Sabha that it has been decided to set up six main stations and five sub-stations for research on fruits and vegetables preservation under the Central Food Technological Research Institute, Mysore.

The main stations would be at Bombay, Lucknow, Gauhati, Delhi, Simla and Kodur, and the sub-stations would be at Nagpur, Trichur, Jadavpur, Kulu and one in Bihar State, (*May 10, 1962*).

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CSIR NEWS

VOL. 12 NEW DELHI—JUNE 11, 1962 : JYAISTHA 21, 1884 No. 11

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MEETINGS & SYMPOSIA

Directors' Conference

The tenth conference of the Directors of national laboratories and cooperative research associations will be held at the Regional Research Laboratory, Hyderabad from July 13-15, 1962. Prof. M.S. Thacker, Director-General, Scientific & Industrial Research, will preside.

Symposia

EARTHQUAKE ENGINEERING

A symposium on Earthquake Engineering sponsored by the CSIR Earthquake Engineering Research & Training School, University of Roorkee, will be held at Roorkee from Nov. 10-12, 1962.

The symposium will cover the following topics :

1. Geological features affecting earthquake occurrence and geological studies for engineering projects in seismic zones (Organising Secretary, Dr. R.S. Mithal, University of Roorkee).

2. Seismological studies and programme in India (Organising Secretary, Dr. A. N. Tandon, Director of Seismology, Meteorological Observatory, New Delhi).

3. Instruments used in seismology and earthquake engineering studies, and analysis of structures for dynamic forces (Organising Secretary, Shri A.R. Chandrasekaran, University of Roorkee).

4. Vibration studies of soils (Organising Secretary, Dr. S. Prakash, University of Roorkee).

5. Ultimate strength of structures and constructional features in seismic zones (Organising Secretary, Dr. O.P. Jain, University of Roorkee).

6. Design of structures for earthquake forces (Organising Secretary, Dr. A.S. Arya, University of Roorkee).

7. Design of dams in seismic zones (Organising Secretary, Shri J. N. Srivastava, University of Roorkee).

Intending contributors may send abstracts of their papers to the Organising Secretaries by Sept. 15, 1962. Full papers with annexures should reach them by Sept. 30, 1962.

ELECTRON DEVICES

A two-day symposium on Electron Devices will be held at the Central Electronics Engineering Research Institute (CEERI), Pilani in December 1962. The symposium will cover the following aspects :

1. Vaccum tubes
2. Solid state devices
3. Novel devices
4. Techniques and processes

Those who wish to contribute papers or otherwise participate in the symposium may correspond with the Assistant Director, CEERI, Pilani.

PERSONAL

● DR. V. SUBRAHMANYAN, Director, CFTRI, Mysore left Mysore on May 24, 1962 on a ten-week tour to Europe, America, Japan, Australia and New Zealand.

After visiting Rome and U.K. where he has several lecture engagements, Dr. Subrahmanyan will proceed to U.S.A., to receive the Babcock-Hart Award of the Institute of Food Technologists at Miami Beach on June 12, 1962. Later, he will visit leading research centres in U.S.A., Canada, Australia, New Zealand and Japan and deliver lectures. Dr. Subrahmanyan is expected to return to India in early August 1962.

● DR. A. SREENIVASAN, Deputy Director, CFTRI, Mysore returned from West Germany after participating in the Conference organised by the International Federation for investigation of the quality of Edible Plants at Wiesbaden (Deutschland).

● DR. L. A. RAMDAS, Assistant Director and Head of the Division of Heat and Power, NPL, New Delhi has been appointed Officer on Special Duty, CSIR, New Delhi (w.e.f. June 2, 1962). Dr. Ramdas will assist the Director-General, Scientific & Industrial Research in the development of research projects on evaporation control, utilisation of solar energy, and arid zone research. He will also continue his basic researches on radiation, evaporation control and solar energy at NPL.

● PROF. M.V. BOPARDIKAR, Assistant Director, CPHERI, Nagpur is looking after the duties of the Director of the Institute in addition to his own duties with effect from May 17, 1962 in the absence of Shri R.S. Mehta, Director, who is on a study tour abroad for a period of four months.

Promotions

SARVASHRI N.N. SINGHAL & R.A. PADMANABHAN—Senior Scientific Officers : Grade I, CMERI, Durgapur (April 30, 1962).

SHRI M.C. SEN—Senior Scientific Officer : Grade I, NML, Jamshedpur (May 1, 1962) :

SHRI D. S. TANDON—Senior Scientific Officer : Grade I, NML, Jamshedpur (May 1, 1962).

SHRI K.N. SRIVASTAVA—Liaison Officer, NML, Jamshedpur (May 1, 1962).

SHRI G. J. NARAYANA—Documentation Officer, Publications & Information Directorate, CSIR, New Delhi (June 1, 1962).

SARVASHRI L. V. RAMACHANDRAN, H.C. NANDI & D. BAGCHI—Senior Scientific Officers: Grade II, CFRI, Jealgora (April 20 and 28 and May 25, 1962).

SHRI S.N. BOSE—Junior Scientific Officer, CFRI, Jealgora (May 25, 1962).

SHRI S.K. BISWAS—Junior Scientific Officer, NML, Jamshedpur (May 1, 1962).

Resignations

SHRI P. N. KATHJU—Industrial Liaison Officer (CSIR), Jaipur (Feb. 28, 1962).

SHRI SURESH CHANDRA—Junior Scientific Officer, NML, Jamshedpur (April 30, 1962).

SHRI D.N. RATH—Junior Scientific Officer, NML, Jamshedpur (April 30, 1962).

Transfers

SHRI O.P. KHANNA, Under Secretary, CSIR Secretariat, New Delhi—Administrative Officer, CFRI, Jealgora, (May 8, 1962).

SHRI G. MAHADEVAN—Section Officer, CFRI, Jealgora—Section Officer, CECRI, Karaikudi (April 6, 1962).

SHRI BRIJ MOHAN LAL—Civil Engineer, CSIR, New Delhi—Civil Engineer, CRRI, New Delhi (March 31, 1962).

SHRI HAZARI LAL, Civil Engineer, CSIR, New Delhi—Civil Engineer, NPL, New Delhi (June 1, 1962).

* * *

● Dr. Atma Ram, Director, CGCRI, Calcutta has been invited to take up the duties of the General Secretary, Indian Science Congress Association.

● Shri S. S. Bhatnagar, Senior Scientific Officer, NML, Jamshedpur, left India on May 24, 1962 to Paris on deputation to France (9 months) under the Indo-French Technical Cooperation Agreement.

● Shri S.N. Bhattacharyya, Senior Research Fellow at the Indian Association for the Cultivation of Science, Calcutta, has been awarded the D. Phil Degree of the University of Calcutta on completion of his thesis entitled : ***Thermodynamic properties of binary liquid mixtures.***

● Shri C.A. Taneja, Senior Scientific Officer, CBRI, Roorkee, has been nominated member of the Cement Concrete Floor Finishes Sub-committee of the Indian Standards Institution.

Dr. N. K. Panikkar

Dr. N. K. Panikkar, formerly Fisheries Development Adviser to the Government of India, joined CSIR on May 26, 1962, as Director, Indian Programme for International Indian Ocean Expedition.

Dr. Panikkar (*b.* May 17, 1913 at Kottayam, South India) graduated from the Madras Christian College, Madras (1933) and worked as a Research Scholar at the Madras University (1933-37). He was awarded the D.Sc. degree of the University in 1938.

As Overseas Scholar of the Royal Commission for the Exhibition of 1851 at the University of London, Dr. Panikkar carried out researches under Prof. A.V. Hill, F.R.S. and Prof. D.M.S. Watson, F.R.S. on comparative physiology (1938-39). He also worked on problems relating to marine biology and oceanography at the Marine Biological Laboratory, Plymouth under the guidance of Prof. W.R.G. Atkins, F.R.S. and Prof. S. Kemp, F.R.S. (1939-41) and at the University of Cambridge (1941-42).

On his return to India in 1943, Dr. Panikkar joined the University of Travancore as Professor of Zoology. In 1944, he was appointed Director, Zoological Laboratory, Madras University. In 1946, he was appointed Officer on Special Duty for organising fisheries in the country, and later worked as the General Physiologist at the Central Marine Fisheries Research Institute, Mandapam. He became the Director of the Institute in 1950.

Dr. Panikkar was Chairman of Committees set up by the Govt. of India on Fisheries Education (1958-59) and Fisheries Research (1957-62). He is the Member-Secretary of the Indian National Committee for Oceanic Research, constituted by the Government of India in 1960 ; member, Special Committee on Oceanic Research (SCOR) of the International Council of Scientific Unions ; and member, Indian Ocean Working Group.

Dr. Panikkar represented India at the Indo-Pacific Fisheries Council meetings at Singapore, Manila, Bangkok, Tokyo and Bandung (1949-57) and the U. N. Technical Conference on Conservation of the Living Resources of the Sea held at Rome (1954). He was Chairman of the Indo-Pacific Fisheries Council (1955-57) and President of the Section on Populations of the Sea at the International Oceanographic Congress, New York (1959). He was member of the Indian delegation to the U.N. Conference on plenipotentiaries for the Codification of the Laws of the Sea held at Geneva in 1958 and 1960 and the Inter-Governmental Oceanographic Commission held at Copenhagen and Paris in 1960 and 1961.

Dr. Panikkar is a Fellow of the National Institute ot Sciences of India, the Indian Academy of Sciences and the National Academy of Sciences. He has published numerous papers on comparative physiology, biological oceanography and fisheries.

Research Fellowships

The following have been awarded CSIR Fellowships under the schemes noted against their names :

Senior Fellow

Shri K. Nagamuneswara Rao—***Radar precipitation studies*** (Andhra University, Waltair).

Junior Fellows

Shri B. P. Dass—***Synthesis of new antispasmodics in the isoquinoline series*** (Bengal Immunity Research Institute, Calcutta).

Dr. K.M. Shah—*Pharmacological Research Unit* (Medical College, Baroda).

Miss Gita Chakravarty—***A chemical study of the chromogenic factors of cottonseed ond pongam oils*** (University of Delhi, Delhi).

Research Schemes Terminated

The following schemes have been terminated :

1. Absorption dispersion of microwave by polar gaseous molecules—Shri Krishnaji, Allahabad University, Allahabad (June, 30, 1962).

2. Study of the weak lines in the spectra of elements tantalum (73) to bismuth (83) using the curved crystal focussing spectrograph—Dr. B. G. Gokhale, Lucknow University, Lucknow (Feb. 28, 1962).

RESEARCH IN PROGRESS

National Laboratories

CRRI, NEW DELHI

Construction of Embankment on Marshy Land—Studies have been undertaken on the design and construction of a stable highway embankment on soft and marshy land in the Little Rann of Kutch. A detailed study of the sub-soil properties of the region has been carried out using a light weight, mechanically operated drilling rig. The *in situ* strength of clay at various depths has also been determined. Undisturbed soil samples taken from various depths down to the hard stratum (50-60 ft. below) are being analysed.

CLRI, MADRAS

Resin Immergan Tannage—Effect of retannage of resin tanned leather (urea-formaldehyde and melamine formaldehyde) with Immergan has been studied. The leathers obtained by retannage are full, soft and more water absorbent than those produced by resin tannage alone. The shrinkage temperature of leather after Immergan treatment increases from 70° to 84°C.

NBG, LUCKNOW

Aromatic Principles of Ambrette Seed—The crude fat of ambrette (*Abelmoschus moschatus*, Hindi : musk) seed is used as a flavouring agent for tobacco. It contains ambrettolide and farnesol, but the aroma is affected by the fat which is liable to become rancid.

A process (Indian Pat. No. 72408) for the separation of aromatic principles from the seed fat has been developed. The concrete is suitable for the preparation of high grade scents; it can be used as a substitute for pure ambrettolide.

CMRS, DHANBAD

Dust Hazard in Indian Mines—A study of environmental conditions in mines is important for understanding the problem of diseases caused by dust in mine workers.

Measurements of airborne dust in two mines (one gassy and ventilated by mechanical means, and the other non-gassy and naturally ventilated) in Jharia coalfield have been completed. The measurements were taken during mining operations using the thermal precipitator. The study shows that air movement in underground working areas in both mines is sluggish (less than 0-40 ft./min.) and the concentration of respirable dust in air during some operations is higher than that specified in the British Standard (850 p./cc.)

Sponsored Research

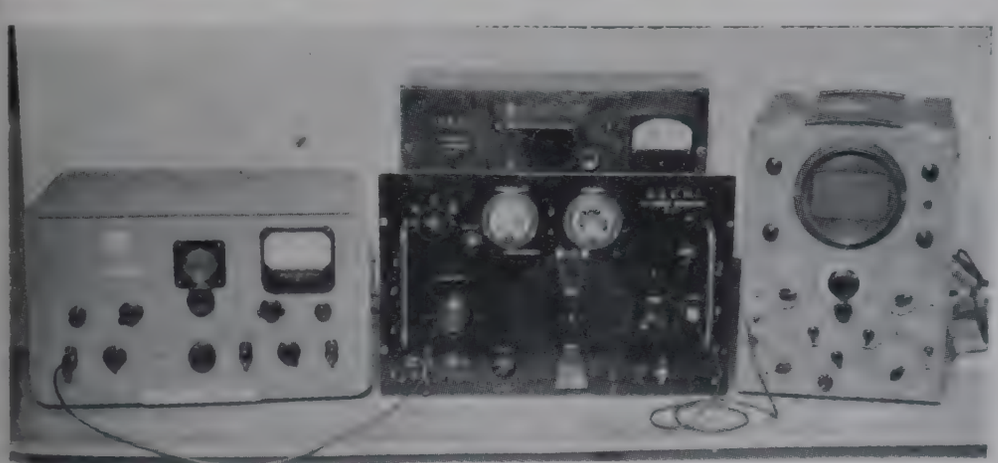
Carbohydrate Metabolism — The effect of antibiotics (tetracyclines, chloramphenicol, penicillin, dihydrostreptomycin, terramycin, aureomycin and achromycin) on carbohydrate and lipid metabolism in rabbits and rats has been investigated. The effects of tolbutamide have been studied in diabetic rhesus monkeys. These studies have shown that glucose utilization by animals is lowered on prolonged administration of penicillin, dihydrostreptomycin, terramycin and aureomycin, but it is not affected by achromycin and chloramphenicol. The tissue concentrations of cholesterol and phospholipids increase after prolonged administration of penicillin, dihydrostreptomycin, terramycin and achromycin ; however, in the case of aureomycin, glucose utilization is affected during the administration of the drug, but normally is restored within a week after its withdrawal.

Tolbutamide reduces the level of glucose and inorganic phosphorus in the blood of normal monkeys as in the case of insulin administration. Hyperglycemia is produced in high doses. In alloxan diabetic monkeys, tolbutamide neither lowers the blood glucose and inorganic phosphorus nor decreases the glycosuria and ketonuria. In combination with small doses of insulin, tolbutamide causes diminuation of ketonuria but the blood sugar level is not affected. The increase in glucose level in blood after fructose administration in alloxan diabetic monkeys, is partly counteracted by the administion of tolbutamide—SACHCHIDANANDA BANERJEE, Bikaner Medical College, Bikaner.

Respiratory Activity of Rice Embryo—The respiration rates of germinating rice seeds and seedlings have been studied at different oxygen concentrations using seeds of *Chinsurah Boro I* variety. The rate of respiration of excised seedlings in the submerged condition is greater than that of intact seedlings. Treatment with indole acetic acid (IAA) appreciably increased the rate of oxygen consumption. Oxygen utilisation by rice embryo varies with the amount of endosperm attached to the embryo ; in the early stages, oxygen consumption is high if the endosperm is kept intact. In 122 hr and 144 hr—old seedlings, however, the removal of endosperm results in increased oxygen utilisation.

The auxin content of seedlings without endosperm increases from 24 hr onwards up to 72 hr and then gradually decreases. The auxin content of endosperm also follows the same path. Application of sucrose with IAA results in higher respiratory rates than with auxin solution alone ; this is particularly prominent in 48-hr. old seedlings.

Cumarin solution (1-100 p.p.m.) reduces oxygen uptake and carbon dioxide evolution in intact seedlings; in lower concentrations (0.1-0.001



CEERI, PILANI—Prototype of R.F. signal generator (range, 80 kc/s. to 25 Mc/s.) designed and fabricated at the Institute

p.p.m.), coumarin increases the rate of respiration—S.M. SIRCAR, University College of Science, Calcutta.

Heat Resistance of Bacillus subtilis—The effect of different chemicals and spices on the heat resistance of spores of *B. Subtilis* isolated from spoilt canned vegetables has been studied. Heat resistance of spores at 110°C is little or slightly affected if the organisim is sporulated in nutrient broth containing sodium chloride (up to 1.0 per cent), but calcium chloride even at low concentration (0.01 per cent) decreases the resistance. The susceptibility of spores to thermal destruction at 110°C progressively increases with increase in sucrose concentration (above 15 per cent); the rate of destruction of spores is markedly high when sucrose concentration reaches 55 per cent. Starch up to 1.0 per cent does not affect the resistance. Acetic, propionic and butyric acids lower the heat resistance of spores and their effectiveness increases with the rise in molecular weight of acid.

Chillies and mustard oil are effective in reducing the heat resistance of spores. Chillies, turmeric, coriander and cumin are more effective in the form of whole powders used in aqueous suspension than in the form of ether or alcohol extracts—A.N. BOSE, B. BANDOPADHYAY, R. M. BARDHAN & A.K. ROY, Jadavpur University, Calcutta.

Photochemical Oxidation of Glycerol—The photochemical reaction between glycerol and potassium dichromate has been investigated under varying concentrations of hydrogen ion, glycerol and dichromate. The rate of reaction is the same whether the solution is neutral or alkaline. The ratio varies linearly with glycerol concentration of 1.74 to 3.49 *M*. Linear variation is also observed when the concentration of potassium dichromate varies from 0.005 to 0.025 *M*.; at very low concentrations of dichromate, however, the linearity is not maintained.

A colorimetric method for determining the rate of oxidation of organic compounds by potassium dichromate has been developed. The method consists in reducing dichromate with the sodium salt of ethylenediaminetetraacetate and estimating the colour concentration of the resulting purple chromium complex—(Miss) K.K. ROHATAGI & P. K. BHATTACHARYYA, Jadavpur University, Calcutta.

PATENTS & PROCESSES

Patents Filed

81779 : *One coat white or coloured enamelling directly on steel*—Dr. Atma Ram, S.S. Verma & V.G. Upadhyaya, CGCRI, Calcutta.

82189 : *Production of dextro-tartaric* and *oxalic acids*—H. G. Vartak, S.G. Patil & V. Jagannathan, NCL, Poona.

82191 : *An improved jacketted electrolytic cell for the electro-deposition of metals and metallic oxides in general and manganese dioxide in particular*—M.J. Shahani & T. Banerjee, NML, Jamshedpur.

82303 : *An auger-boring guide*—Subhash Chandra & A.K. Deb, CBRI, Roorkee.

82446 : *An improved melt pot and furnace for the continuous hot dip aluminizing of steel and wire*—M.J. Shahani & P.K. Gupte, NML, Jamshedpur.

Process

A process for the manufacture of *Hydrated Calcium Silicate from Marine Gypsum* has been developed by the Central Salt & Marine Chemicals Research Institute, (CSMCRI), Bhavnagar. The project report of the process can be had against a fee of Rs. 5.00 from the Director, CSMCRI, Bhavnagar.

Research Papers

Post-rigor changes in nitrogen distribution and texture of fish during storage in crushed ice—M. N. Moorjani, B. R. Baliga, B. Vijayaranga & N. L. Lahiry, CFTRI, Mysore, *Food Tech., Champaign*, **16** (1962), 10-84.

Changes with pyrophosphate-containing buffer and precipitation of protein fraction at T/2-0.225 during storage of fresh-water fish in ice—B. R. Baliga, M. N. Moorjani & N. L. Lahiry, CFTRI, Mysore. *Food Tech., Champaign*, **16** (1962), 84-86.

Extraction of sarcoplasmic fraction of fish muscle with salt solutions of different ionic strengths and *p*H—B. R. Baliga, M. N. Moorjani & N. L. Lahiry, CFTRI, Mysore. *Food Tech., Champaign*, **16** (1962), 86-88.

Some aspects of weathering of coal—J. M. Sanyal, J. Bandopadhyay, D. C. Mitra, N. N. Das Gupta & A. Lahiri, CFRI, Jealgora. *J. Mines Metals Fuels*, **10** (2) (1962), 1-6.

A study of the size analysis and size degradation of Jharia coals—S. K. Mitra, D. Basu, G. G. Sarkar & A. Lahiri, CFRI, Jealgora. *J. Mines Metal Fuels*, **10** (3) (1962), 1-9.

Possibility of alkylation of coals and chlorinated coals—M. S. Iyenger, D. D. Banerjee, S.N. Dutta, D. K. Banerjee & S. Chowdhury, CFRI, Jealgora. *Nature*, **193** (1962), 646-47.

Further studies on the dehydrogenation of coals by sulphur—B. K. Mazumdar, S. K. Chakrabartty, N. G. De, S. Ganguly & A. Lahiri, CFRI, Jealgora, *Fuel*, **41** (1962), 121-28.

Some aspects of the constitution of coal—B. K. Mazumdar, S.K. Chakrabartty & A. Lahiri, CFRI, Jealgora. *Fuel*, **41** (1962), 129-39.

PUBLICATIONS

Double Curved Shell (CBRI, Roorkee, 1962, Pp 24). Methods of casting and use of casts in the construction of roofs and floors, economics of production.

Inexpensive Roofs for Small Houses. Building Digest No. 5, 1962 (CBRI, Roorkee).

Acoustic Design of Auditoria, Halls & Theatres. Building Digest No. 6, 1962 (CBRI, Roorkee).

Undisturbed Sampling of Soils. Building Digest No. 7, 1962 (CBRI, Roorkee).

VISITS

CFTRI, Mysore—Dr. H. R. Ambler, Scientific Adviser, U.K. High Commission in India visited the Institute (May 25-26, 1962), and gave a talk on "Scientific Research in U.K. and India".

NAL, BANGALORE — Dr. C.M. Tchen, National Bureau of Standards, Washington D.C. visited the Institute and gave a talk on "Some problems in Magneto-hydrodynamics" (May 16, 1962).

CMRS, DHANBAD—Mr. John Lareau of the Occupational Safety and Health Division, International Labour Office, Geneva (May 23 & 24, 1962).

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MEETINGS & CONFERENCES

The Tenth Conference of Directors of National Laboratories and Cooperative Research Associations will be held from July 11-13, 1962 (not from July 13-15 as announced earlier) at the Regional Research Laboratory, Hyderabad.

The first meeting of the Committee constituted by CSIR to consider the proposal for "producing fuel gas from coal and setting up a cross-country gas grid for supply of fuel gas for domestic and industrial uses" will be held at the Regional Research Laboratory, Hyderabad on July 10, 1962. Prof. M. S. Thacker, Director-General, Scientific and Industrial Research will preside.

Human Relations in Industry

A conference on Human Relations in Industry, organized by the South India Textile Research Association, will be held at Coimbatore on July 7-8, 1962. Prof. Humayun Kabir, Minister of Scientific Research & Cultural Affairs, will inaugurate the conference.

The conference will provide a forum for the study of specific problems in the area of human relations with special reference to textile industry.

Research papers and reports on the following three topics will be presented, and lectures will be delivered by experts :

(1) Problems of Special Employment Groups : women workers in industry; night shift workers; and white collar employees.

(2) Management Practices : Role of management in human relations; the chief executive; and structure of management including the Number Two executive.

(3) Health and Safety : Employee State Insurance Scheme ; mental health in industry ; and safety in industry.

Prominent industrialists, management personnel, trade union leaders, foreign consulates and representatives from Government, Productivity Councils and professional bodies are expected to participate in the conference.

PERSONAL

Appointment

SHRI RAJ NARAIN—Junior Scientific Officer, NML, Jamshedpur (April 30, 1962).

Promotions

SHRI A.H. KULKARNI—Engineer Officer, CSIR, New Delhi (June 7, 1962).

SHRI V.S. SAMPATH—Senior Scientific Officer : Grade II, NML, Jamshedpur (May 16, 1962).

Transfer

SHRI N.S. ANAND—Section Officer, NPL, New Delhi—Officiating Administrative Officer, CPHERI, Nagpur (June 1, 1962).

* * *

MR. C.J. WEBB, Principal Scientific Officer, Building Research Station, Garsten, U.K. is working on a short-term assignment as a Guest Scientist in CBRI, Roorkee since May 28, 1962.

SHRI J.G. PARIKH, Dy. Director, Silk & Art Silk Mills' Research Association, Bombay, has been elected Chairman of the Bombay Section of the Textile Institute, Manchester.

DR. G.S. SIDDAPPA, Asstt. Director, CFTRI, Mysore, has been elected Fellow of the Royal Institute of Chemistry, London.

He has been awarded the *Kashalkar Memorial Award* by the All India Food Preservers' Association for valuable technical assistance to the industry. He has also been elected Convener of the Technical Advisory Committee for 1962.

(Cont. on page 4, col. 1)

Prof M.S. Thacker

Prof. M. S. Thacker, Director-General, Scientific and Industrial Research returned to India on June 10, 1962 after the completion of his six-weeks tour in Europe and Africa.

During his visit to Europe, Prof. Thacker signed an agreement on behalf of the Government of India with Techno-export of Czechoslovakia for collaboration in the setting up of a Central Machine Tool Design Institute at Bangalore. While in Geneva, he had talks with officials of the Executive Secretariat set up by the United Nations in connection with the U. N. Conference on the Application of Science & Technology for the Developing Areas of the World, to be held in 1963. He conferred with officials of the UNESCO and the British Commonwealth Scientific Organization during his stay in Paris and London.

Prof. Thacker visited several Commonwealth countries in Africa and had talks with the heads of organizations on proposals for scientific developments in those countries and also exchanged views on matters that will be considered by the Commonwealth Scientific Committee when it meets in India in November 1962.

Training Course in Electroplating

The three-month training course in electroplating organized every year by the Central Electrochemical Research Institute (CECRI), Karaikudi, will commence on August 20, 1962. The course will comprise lectures as well as practical training in advanced aspects of electroplating. Applications for admission will be received till July 2, 1962.

Prospectus and application forms are available from the Director, CECRI, Karaikudi.

INTERNATIONAL INDIAN OCEAN EXPEDITION
INDIAN PROGRAMME

The Indian National Committee on Oceanic Research has finalized the programme of India's participation in the International Indian Ocean Expedition, and a few exploratory cruises have already started.

The areas which will be covered by the programme include : northern part of the Arabian Sea above the equator, with 60° longitude as the western boundary and the Sumatra coast with Andaman and Nicobar islands as the eastern boundary. To the south of the equator, cruises will be made up to 12° south latitude, because of the special importance of the south-western area in the formation of monsoon winds. Cruises will be extended as far west as the east coast of Africa where oceanic currents which influence the coastal circulation on the north-west coast of India originate.

Meteorology : In the field of meteorology, the Indian programme will include observations and calculation of energy flux between the ocean and the atmosphere. Studies will be made of sun, sky and atmospheric radiation; air, pressure, temperature and humidity at deck level; surface temperature of sun; sea surface currents; waves, swell, tides; and rainfall, evaporation, profiles of wet and dry bulbs, and wind above sea surface.

An International Indian Ocean Meteorological Centre, with facilities for collection, preparation, analysis and interpretation of meteorological data is proposed to be established at the Regional Meteorological Centre at Colaba, Bombay. Improvements will be made on meteorological soundings at eight stations in the country, namely, Trivandrum, Mangalore, Bombay, Ahmedabad, Port Blair, Madras, Waltair and Calcutta. It is proposed to set up a shallow water observatory for vertical flux measurements, ocean-weather observatories at Minicoy, Amini Devi, Car Nicobar and Port Okha, and surface weather observatories on board the Indian vessels participating in the Expedition. All first class coastal observatories will be equipped with self-recording meteorological instruments.

Physical and chemical oceanography : An attempt will be made to identify, define and follow the seasonal changes of water masses around India. Problems relating to vertical distribution of salinity within the sea, surface and subsurface currents, transparency, sound propagation, magnetic field, gravity field, and tides will be studied.

Water samples will be analysed for salinity, phosphates, nitrates and silicates. and temperature observations at standard depths will be taken.

Marine biology and fisheries : Areas of high productivity and potential fisheries will be explored. The distribution and abundance of marine life in relation to water masses, current systems, and monsoonal circulation will be studied.

Besides plankton collection and measurement of primary productivity, experimental fishing using different types of gear will be carried out. A plankton and biology collection centre is proposed to be set up at Cochin.

Marine Geology & Geophysics : Geological and geophysical programme will include gravity, magnetic and bathymetric observations as well as coring, heat-flow studies and seismic refraction observations.

Arrangements have been made for equipping four Indian vessels which will participate in the Expedition. The scientific personnel would be drawn from the Ministries of Defence, Food & Agriculture, Scientific Research & Cultural Affairs, Steel, Mines and Fuel and Transport & Communications, as well as from the Department of Atomic Energy and the Universities. One of the vessels, *R. V. Varuna*, is now engaged in exploratory cruises between Cochin and Mangalore.

Solid State Physics

A Summer School in Solid State Physics was organized jointly by the CSIR Physical Research Committee and the University Grants Commission at Kodaikanal from May 21 to June 8, 1962.

Thirty-nine scientists from research centres in the country participated in the Summer School. Lectures on the following topics were delivered : Basic crystallography ; X-ray and neutron diffraction ; inelastic neutron scattering ; nuclear magnetic resonance and its application to the determination of proton positions ; diffusion and hindered rotation in solids and study of Knight shift in metals ; electron paramagnetie resonance ; spectroscopy of rare earths and their possible use as laser materials; infra-red and Raman spectroscopy of crystals with special reference to their structure ; theory of lattice vibrations ; band theory of solids ; crystal growth ; defects and imperfections in a crystal lattice. In addition, seminar talks on current developments in the following topics were presented - Lattice vibrations and specific heat of metals ; thermal expansion of crystals ; ferroelectricity ; preparation and properties of oxidic semiconductors : luminiscence spectra of crystals ; indirect nuclear spin-spin interaction in solids and nuclear magnetic resonance; and Davydov splitting in electronic absorption spectra of polar organic molecules in the crystalline state.

Visitors

Mr. C.J. Ridge, Officer-in-Charge, Gypsum Plaster Investigations, CSIRO, Melbourne, Australia, visited the Central Building Research Institute, Roorkee on May 7-9, 1962 and delivered a lecture on "Plaster Industry." Prof. H. Wright Baker, Chief UNESCO Adviser and Acting Director, CMERI, Durgapur and Mr. T.B. Barlag, UNESCO Expert on Materials and Structures visited the Institute on June 2, 1962.

Dr. G.T. Ward, Director, Brace Research Institute, McGill University, Canada visited the National Aeronautical Laboratory, Bangalore on May 22-25, 1962 and delivered a lecture on "Research and Educational Activities of the Brace Research Institute". Dr. Ward later visited the Wind Electric Station of NAL at Porbandar and the Central Salt and Marine Chemical Research Institute, Bhavnagar and delivered a lecture on "Utilization of Solar Energy & Wind Power".

RESEARCH IN PROGRESS

National Laboratories

NML, JAMSHEDPUR

Up-grading of Salem Magnetite—Pilot plant beneficiation studies on low-grade magnetite (assaying, Fe, 36.51 and SiO_2, 44.88 per cent) have shown that a concentrate assaying 65.62 per cent Fe and 7.74 per cent SiO_2, with a recovery of 90.8 per cent Fe, is obtained by wet magnetic separation of ground ore. A concentrate assaying 70.4 per cent Fe and 2.74 per cent SiO_2 with a recovery of 88.8 per cent Fe is obtained when the primary concentrate is subjected to a second magnetic separation. Pig iron of satisfactory grade has been produced by smelting the up-graded ore with Neyveli lignite coke (obtained by high temperature carbonization). At the instance of Madras Government, 60 tons of the up-graded ore has been sent to Norway for smelting tests.

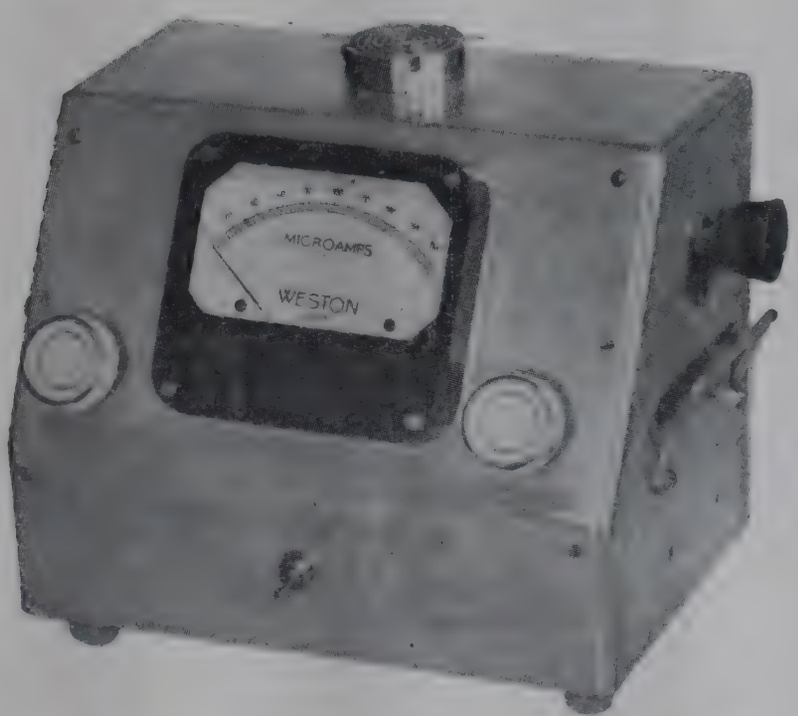
Foundry Grade Bentonite—The suitability of Hathi-Ki-Dhani bentonite from Jodhpur (Rajasthan) as binder for synthetic sands has been examined. The bentonite sample possesses basically good bonding property; the sodium base was within the specification (*pH*, 8-7.5); the gel strength is low, 18 per cent; swelling index, 5; and base exchange capacity, 70 me/100g. The presence of metahalloysite and mallis-clay, which are non-swelling, and of low base exchange capacity, however, affect its bonding characteristics. The study showed that grey iron casting can be produced from medium grade Rajmahal sand by the addition of 3-5 per cent bentonite.

CGCRI, CALCUTTA

Mica Classification Instrument—The usual practice of classifying mica, by visual tests does not ensure that the samples are free from mechanical defects (micro holes, cross grains, waviness, etc.) and are suitable for use in the electrical industries.

An instrument for the rapid classification of mica (in block and film forms) for use in condensers has been designed and constructed in the Institute. It consists of a precision 1 Mc/s. oscillator, a high Q tuning circuit with a grid-type electrode, and a stable valve voltmeter with a balancing circuit as indicator. It is self-contained, battery-run, easy to operate and portable; it has a high working speed.

The instrument works on the principle of determining the radio frequency power factor of mica by applying an electrostatic field parallel to the laminae; impurity centres responsible for high power factor are usually located at laminar junctures rather than in laminae themselves.



CGCRI, Calcutta—Instrument for the rapid classification of mica.

CLRI, MADRAS

Acids in Chrome Liquors—Free organic acids in chrome liquor are estimated (within an error of 1-2 per cent) by the solvent extraction method. Free mineral acids are determined differentially in acetone-isoprophyl alcohol medium, and by potentiometric titration. The basicities of chrome liquors (Lehigh method) containing added organic acids and leather shavings lie in the range of 20-40 per cent.

The complexed organic acids are determined by refluxing the liquor with 4-N-hydrochloric acid, extracting the freed acids in tertiary amyl alcohol-N-butanol and differential titration. Using this method the acids (except oxalate) can be estimated within an error of 1-1.5 per cent up to a chrome-acid mole ratio of 1:2.

Shrunken Grain from Buff Hide Splits—Good quality shrunken grain leathers have been prepared from buff grain splits by the standard vegetable chrome tanning process. The required boldness and fineness of grain are achieved by varying the thickness of split. The use of syntans, however, produces uniform but smaller pattern of grains. The splits have been finished as utility, upholstery and case-hide leathers and samples have been sent to the railways for trial.

Buff splits yield good quality lining leathers on tannage with Immergan and oil.

Sponsored Research

Oxalic Acid Metabolism—Plants grown in dark contain lower amounts of oxalate than those grown in light. The oxalate content of tubers does not alter on storage. Sprouting tubers have a higher oxalate content, but it decreases with ageing.

The possible formation of oxalic acid by the action dehydrogenase on glyoxalic acid has been examined using methylene blue as hydrogen acceptor. The study has shown that though some tissues give definite indication of enzyme activity, the rate of reaction is slow and not easily reproducible.

Experiments carried out to detect a possible decarboxylative degradation of oxalate in tissues yielded negative results. However, *Bougainvillea spectabilis* contains a powerful enzyme which brings about

degradation of oxalate accompanied by uptake of oxygen and evolution of carbondioxide.

The enzyme activity in *B spectabilis* is optimum at *p*H 6.8; the enzyme is inactivated at 80°C. Dialysis and supplementation with riboflavin and flavinmononucleotide do not affect the activity. Cyanide, fluoride, arsenite, arsenate and orthophenanthroline have no effect on the activity, while hydroxylamine, ethylenediaminetetracetate, azide and molybdate have powerful inhibitory effect. 8-Hydroxyquinoline at higher concentration accelerates the activity.

The enzyme activity in the plant shows distinct diurnal variation, being highest at 12 noon and lowest at 4 p.m. The oxalate content is highest at 4 p.m. and shows a significant drop at 12 noon—P.S. Krishnan & S.K. Srivastava, Lucknow University, Lucknow.

Manufacture of Ethylene Oxide—Ethylene oxide has been prepared from alcohol, in 20-25 per cent yield by a single step process, using activated bauxite and reduced silver as catalyst, barium peroxide as promoter, and oxides of nitrogen as additional oxidiser. The results have been confirmed by pilot plant trials using a high L/D ratio type reactor. The optimum operating conditions are : temperature, 265-280°C. ; space velocity, 1800-hr; bed height, 7.5 in. ; alcohol : air mole tatio, 10:100 ; and catalyst particle size, —90+100 or —60+90 mesh—N.R. Kuloor, S. Hamsath Ibrahim & A. Ramalingam, Indian Institute of Science, Bangalore.

PERSONAL

(*Contd. from page 1, col. 2*)

DR. V.S. RAMACHANDRAN, Senior Scientific Officer, CBRI, Roorkee, returned from Denmark after participating in the Eighth International Ceramic Congress held at Copenhagen, during May 21-25, 1962.

SHRI Y.R. CHADHA, Scientific Reporter, Publications & Information Directorate, CSIR, New Delhi returned from U.K. and resumed duty on May 14, 1962 after completion of his ten-months training in the 'organization and operation of scientific and technical information services' under the Colombo Plan. He worked mainly at the Tropical Products Institute, London and Aslib, London. Shri Chadha has been admitted a Member of the Institute of Information Scientists, U.K.

SHRI J.M. DAVE, Asstt. Director, CPHERI, Nagpur has been nominated member of the Air Pollution Sub-Committee of the Indian Standards Institution.

SHRI H.V. MIRCHANDANI, Asstt. Director, CBRI, Roorkee has been nominated member of the Output Standards for Building Trades Subcommittee of the Indian Standards Institution.

DR. K.S. BALAIN, Senior Scientific Officer, CEERI, Pilani has been nominated member of the Panel for Semi-Conductor Devices and Transistors and Ferro-Magnetic Materials of the Indian Standards Institution.

Research Fellowships

The following have been awarded Junior Fellowships under the schemes noted against their names :

MISS DEVI KAR—Cytology of mosses of Eastern India (Presidency College, Calcutta).

SHRI A.K. CHAKRABORTY—Enzymatic synthesis of RNA and its role in protein synthesis (Bose Institute, Calcutta).

SHRI ROSHI CHATTERJEE—Recent micro-chemical techniques—application of ring over technique in qualitative and quantitative analysis (University of Allahabad, Allahabad).

SHRI B. C. BORA—Spectroscopic investigations of fluroaromatics (Gauhati University, Assam).

SHRI H.R. GAKHAR—Studies in terpenes and terpenoids (Panjab University, Chandigarh).

SHRI N.M. BISWAS—Vitamin C and reproduction (University of Calcutta, Calcutta).

Research Papers

Evaluation of the thermal efficiency of Bulls' Trench Kiln—N. C. Majumdar, CBRI, Roorkee—*Chemical Age* (*India*) **13** (1962), 121-24.

The many-electron wave equation in the Schrodinger-Pauli form—K.S. Viswanathan, NAL, Bangalore. *Proc. Indian Acad. Sci.*, **55A** (1962), 261.

The anisotropy of elastic wave propagation in crystals—R. Venkataraman, NAL, Bangalore. *Proc. Indian Acad Sci.*, **55A** (1962), 311.

PATENTS & PROCESSES

Patents Sealed

71467 : Improvements in or relating to traffic paints—Dr. Atma Ram, S.B. Roy & H.D. Sircar, CGCRI, Calcutta.

71754 : Surface active agents from cashew nut shell liquid—S.C. Sethi, B.C.S. Rao, (Miss) S.B. Kulkarni, S.S. Katti & J.S. Gujral, NCL, Poona.

70555 : An air separator—Y.K.R. Rao, CFTRI, Mysore.

Process ready for exploitation
Aluminium-Silicon Alloys

The National Metallurgical Laboratory, Jamshedpur has developed a process for the manufacture of aluminium-silicon alloys (Indian Pat No. 52335) used in marine castings, manifolds, water jackets, aircrafts fittings, automotive body sections, meter cases, and miscellaneous thin and intricate sections where minimum machinery is required.

The process is based on the alumino-thermic reaction between aluminium metal and silicon dioxide with cryolite as fluxing agent. A part of the aluminium in the mix reduces silica to silicon, which alloys itself with excess of the reductant. Aluminium oxide fluxes with cryolite and is removed. The alloy can be cast into moulds without further refining treatment. The temperature of reaction is 1100-1150° C. and there is no necessity to use super-refractories for lining the furnace.

The novel features of the process are that it does not require metallic silicon, which is not produced in India, or pre-treatment of raw materials or use of specialized furnaces. The product is free from carbides, phosphides and oxides.

The raw materials, namely, aluminium and quartz, used in the process are abundantly available in India. Cryolite used in the process is recoverable in the form of slag used in aluminium reduction cells. The cost of production of aluminium-silicon alloys containing 20 per cent silicon, by this process, is estimated at Rs. 1.20 to Rs. 1.50 per pound.

Parties interested in taking up the commercial development of the process may write to the Secretary, National Research Development Corporation of India, Mandi House, New Delhi.

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CSIR NEWS

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MEETINGS & SYMPOSIA

Utilization of Cotton Linters

Various aspects of the utilization of cotton linters and their upgrading will be discussed at a Research and Industry Meet being organized by the Regional Research Laboratory (RRL), Hyderabad, on September 6 & 7, 1962. Scientists, technologists, and producers and consumers of cotton linters who wish to participate in the Meet may obtain further details from the Director, RRL, Hyderabad.

Water Evaporation Control

A symposium on Water Evaporation Control, organized jointly by the UNESCO South Asia Science Cooperation Office and the Council of Scientific & Industrial Research, will be held at the National Chemical Laboratory (NCL), Poona from Dec. 17 to Dec. 20, 1962. Experts from various countries and delegates from Afghanistan, Burma, Ceylon, India, Nepal and Pakistan, are expected to attend the symposium.

The symposium will cover the following aspects :

(i) *Physics and Chemistry of Monolayers on Water Surfaces*—Resistance to evaporation ; spreading behaviour, phase transformation in solid and related measurements ; and physical properties of monolayers, such as compressibility, 2-d-viscosity, surface potential, collapse pressures, etc.

(ii) *Field and semi-field experiments*—Formulation ; evaporation control; and application and maintenance of monolayers.

In addition, special lectures will be delivered by experts.

Intending participants may send summaries of their papers to Dr. A.B. Biswas, NCL, Poona before July 31, 1962. Full papers should reach him by the middle of October 1962.

Further information may be obtained from Dr. J. Swarbrick, Director, UNESCO South Asia Science Cooperation Office, 100, Sunder Nagar, New Delhi.

CLRI Demonstration

Manufacture of Toy Leather from Kid Skins by a process developed at the Central Leather Research Institute (CLRI), Madras will be demonstrated at the Institute during July 16 to 21, 1962. Various stages of the process, namely, soaking & pickling, tanning, neutralising & fatliquoring and drying & buffing will be demonstrated.

Representatives of leather industry and tanneries who wish to attend the demonstration may send their particulars to the Director, CLRI, Madras.

PERSONAL

Appointments

SHRI K.D. PAVATE & DR. G.N. ACHARYA—Senior Scientific Officers: Grade I, CEERI, Pilani (May 3 and June 14, 1962 respectively).

SHRI K. VENKATARAMANI—Senior Scientific Officer: Grade II, CEERI, Pilani (May 3, 1962).

SHRI L.D. TULI—Senior Scientific Officer: Grade II, CBRI, Roorkee (June 16, 1962).

SHRI A.K. BOSE—Junior Scientific Officer, CMRS, Dhanbad (June 20, 1962).

SHRI S. R. JAGDISH—Junior Technical Officer, CFRI, Jealgora (April 30, 1962).

SHRI S. GOPAL—Personal Assistant (Technical) to the Director, CECRI, Karaikudi (May 28, 1962).

SHRI J. P. HAZARA—Section Officer, CFRI, Jealgora (April 28, 1962).

DR. AMARJIT SINGH—Deputy Director, CEERI, Pilani relinquished charge of his post on resignation with effect from April 30, 1962. Dr. D.L. SUBRAHMANYAM, Assistant Director, took over charge of the Institute from the same date.

* * *

DR. V. SUBRAHMANYAM, Director, CFTRI, Mysore has been re-nominated member of the reconstituted Development Council for Sugar Industry of the Ministry of Food & Agriculture (Department of Food).

DR. A. LAHIRI, Director, CFRI, Jealgora has been nominated member of the Steering Group constituted by the Ministry of Steel & Heavy Industries to consider Advance Action for the Fourth Plan in Iron and Steel.

SHRI DINESH MOHAN, Deputy Director, CBRI, Roorkee has been elected Member of the Institution of Engineers (India) and Associate Member of the Institution of Civil Engineers (London).

PROF. G.S. RAMASWAMY, Deputy Director, CBRI, Roorkee has been coopted member of EILEM Working Group on Concrete and Reinforced Concrete in Hot Countries.

PROF. G.S. RAMASWAMY has been invited to act as one of the chairmen of the World Conference on Shell Structures to be held at San Francisco in the first week of October 1962. The Conference is cosponsored by the University of California, the International Association for Shell Structures and the Building Research Advisory Board of the National Academy of Sciences. Following the Conference, Prof. Ramaswamy has been invited to lecture at a number of American universities, including Stanford, Southern California, Illinois, Washington and Rice University and the California Institute of Technology.

(Contd on p. 2, col. 2)

B R I E F S

Techno-economic Surveys

The Indian Institute of Petroleum, New Delhi has taken on hand a techno-economic survey in South India in connection with the setting up of a proposed refinery, on behalf of the Ministry of Mines and Fuel. Two study teams of the Institute are engaged in conducting the survey.

The Institute is also conducting a survey of potential consumption of petroleum products in Assam and Bihar on behalf of the Indian Oil Company.

Production of Glass Moulds

Production of glass moulds by the chill-casting technique was demonstrated at the Central Glass & Ceramic Research Institute, Calcutta in June 1962. Glass moulds with the desired dense, close-grained micro-structure can be made by this technique. A large number of glass manufacturers participated in the demonstration.

Corrosion and its Prevention

The five-week course on Corrosion and its Prevention organized by the Central Electrochemical Research Institute, Karaikudi concluded on June 6, 1962. Seven trainees representing the following organizations received certificates : Atomic Energy Establishment, Bombay ; Indian Institute of Petroleum, New Delhi ; Vuppala Sree Rama Moorthy & Co., Anakapalle ; Chief Inspectorate of Armaments, Kirkee ; Andhra Trading Co., Trichy ; Research Designs & Standards Organization (Ministry of Railways), Simla ; and Central Electronics Engineering Research Institute, Pilani.

CDRI Ten-year Report

A ten-year Report (1951-61) of the Central Drug Research Institute, Lucknow has been published.

The 206-page Report presents a brief account of researches carried out in the Divisions of Botany & Pharmacognosy, Medicinal Chemistry, Biochemistry, Pharmacology & Chemotherapy, Microbiology & Parasitology, Experimental Medicine, Endocrinology, and Biophysics. It also gives information on the organisation and functions of the Institute, research papers published and patents taken.

Food Research

The second edition of the brochure entitled 'Some Aspects of Food Research' has been brought out by the Central Food Technological Research Institute, Mysore.

The 62-page illustrated brochure presents information on nutritious and supplementary foods, economic utilization of fruits, vegetables processing, packaging, and storage and preservation. It also lists the processes and products developed by the Institute and utilized by industry.

Manufacture of White Cement

Prof. Humayun Kabir, Union Minister for Scientific Research & Cultural Affairs, informed the Lok Sabha that a new process for the manufacture of white cement has been developed by the Regional Research Laboratory, Hyderabad. A non-technical note with cost estimates for a 50 tons/day plant has been circulated to interested parties. The National Research Development Corporation would consider offers and give licence for the exploitation of the process (*June 21, 1962*).

P E R S O N A L

(*Contd from p. 1, col. 3*)

SHRI A. BOSE, Officer-in-charge, BITM, Calcutta left for West Germany on June 27, 1962 at the invitation of the West German Government to visit some of the museums, including the Deutsches Museum, Munich. He will also attend the Sixth General Conference of the International Council of Museums to be held at the Hague from July 4 to 11, 1962. He will return to Calcutta on July 31.1962.

DR. R.N. IYER, Senior Scientific Officer, CDRI, Lucknow left for East Germany for training in Organic Basic Chemistry.

SHRI ZACHARIAH GEORGE, Junior Scientific Officer, CBRI, Roorkee left for Paris on June 23, 1962 for six months training in Pre-stressed Concrete.

SHRI G.S. BALAMALLIAH, Senior Scientific Assistant, IIP, New Delhi left for Paris on April 21, 1962 for studies on testing of Fuels and Lubricants at the French Institute of Petroleum.

DR. N. L. LAHIRY, Assistant Director, CFTRI, Mysore has been re-nominated member of the Meat & Meat Products Sectional Committee of the Indian Standards Institution.

DR. D.S. BHATIA and DR. M. SWAMINATHAN, Assistant Directors, CFTRI, Mysore have been nominated Principal and Alternate Members of the Edible Starches, Confectionery and Cereal Products Sectional Committee of the Indian Standards Institution.

Dr. C R. Krishna Murti

Dr. C.R. Krishna Murti has been appointed, on promotion, Assistant Director, Central Drug Research Institute (CDRI), Lucknow (w.e.f. June 11, 1962).

Dr. Krishna Murti (b. March 3, 1923) obtained his B. Sc. (Hons) in Chemistry and Chemical Technology from the Andhra University in 1942. He had his postgraduate training at the Indian Institute of Science, Bangalore where he worked on the isolation of pectins from Indian fruits and vegetables and the preparation and characterization of rennet and protolytic enzymes from fig latex and other plant materials. He was awarded the Ph.D. degree of the Bombay University in 1948. Later he was associated with investigations on Vanaspati sponsored by the Vanaspati Research Committee and Nutritional Research Unit of the Indian Council of Medical Research, at Bangalore.

Dr. Krishna Murti joined CDRI in June 1950 as Junior Scientific Officer. He was appointed Senior Scientific Officer : Grade II in January 1951 and Senior Scientific Officer : Grade I in November 1957. Later he went to U.K. and worked in the University College, London, National Institute of Medical Research, Mill Hill and Atomic Energy Commission, Harwell. He attended the Fourth International Congress of Biochemistry at Vienna in September 1958. His work relates mainly to enzymes and mechanism of drug action. He has developed methods for the preparation of protein hydrolysates, vitamin concentrates, and phosphatides. Dr. Krishna Murti is the author of about seventy research and review papers.

RESEARCH IN PROGRESS

National Laboratories

CFRI, JEALGORA

Kashmir Lignite—The briquetting and combustion properties of lignite from Shalingange river Firozepur Nala sector have been studied. It has been shown that lignite, pre-treated with 1 per cent alkali solution (even lime water), can be briquetted at low pressure to yield hard briquettes with excellent combustion properties.

The effect of temperature on the briquetting properties of lignite and saw dust blends has been studied at a pressure of 6.5 tons/sq. in. While the lignite itself is not affected by temperature, the strength of briquettes increases both with increase in temperature and the proportion of saw dust in the blend. Briquettes with maximum strength are obtained at a temperature of 200°C. A blend of 40 per cent lignite and 60 per cent saw dust gives briquettes with crushing strength of 12,000 lb./sq. in. They burn evenly and possess good water-resisting characteristics—T. V. SUBRAMANIAN, H.C. NANDI, M.L. DATTA, R.S. GHOSH, M.S. IYENGAR & A. LAHIRI.

CGCRI, CALCUTTA

Plastic Clays—Plastic clays (seventeen samples) collected from different parts of India have been examined for their suitability as ball clays. Preliminary tests indicate that clays from Ellore and Bikaner compare favourably with foreign clays in most physical properties. Clays from Bilaspur, Punyakshetram and Bagagala show promise and they can be utilized after removing undesirable colouring materials present in them. Neyveli buff and Saradhana clays are promising if suitable adjustments are made in the firing process and body compositions. Rajhara and Than clays—widely used as plastic clays in industry—are inferior to others in their plastic and other physical properties.

Promising samples of clays were subjected to chemical analysis, differential thermal analysis, particle size distribution, base exchange capacity and plastic and fired properties of bodies made with 50 per cent quartz. Test results show a wide dissimilarity between Indian plastic clays and foreign ball clays. However, the physical properties of Indian clays can be considerably improved by removing free silica and coloured minerals.

CFTRI, MYSORE

Refining of Millet—Due to the presence of a coarse outer skin, millet are not usually acceptable to consumers of rice and wheat. The problem of refining millets has been studied at the Institute and a method of preparing *ragi* (*Eleucine coracana*) flour with minimum husk has been developed. The method is based on conditioning the grain with moisture to toughen the outer skin before milling. The outer skin separates from the endosperm during milling and a white flour is obtained.

A modified method has been found useful for removing the outer skins of *jowar*, *bajra* and wheat. It consists in moistening the outer surface with a minimum quantity of water (5-7 per cent) and allowing to stand for 5-10 min. when the bran gets toughened and loose; the grains are polished soon after. The retention of nutrients in the grain at different stages of polishing is now under study.

CDRI, LUCKNOW

Antifertility Compounds—Sterilization of male rats by painting the scrotal skin with cadmium chloride solution has been studied. Experiments with 5 per cent cadmium chloride solution, painted thrice daily at 3-hr intervals for one month, have shown typical strophic changes in testis, similar to those induced by a single subcutaneous injection of the salt solution. Detailed studies are in progress.

NBG, LUCKNOW

Grape Cultivation—Grapes of good quality are not normally produced at Lucknow due to unfavourable climatic factors. Studies carried out at the Gardens have shown that edible grapes of fine quality can be produced if suitable varieties are cultivated and modified horticultural practices are adopted.

The vinetum of the Gardens has about 200 varieties of grapes collected from different parts of India and from foreign countries. Of these, 150 have been cultivated; the other fifty are still in the nursery. Among those cultivated, 36 varieties have fruited this season and six green varities—Anabo-Shahi, Bedana, Bhokri, Thompson seedless, Selection-7 and Hur—and four purple varieties—Gulabi, Black Muscat, Kandhari and Alum-wick—have yielded good edible fruits. All the varieties are early ripening and prolific bearing; they have been selected for further trials and extension.

CMRS, DHANBAD

Assessment of Lung Function—Determination of the injurious effects of dust inhalation on pulmonary function is important in mine health. Studies on the problem will soon be undertaken with a portable Jones Air Basal Metabolism Unit which has been recently procured. A salient feature of the unit is that it uses air instead of oxygen, and hence ensures more comfort to persons undergoing lung function tests.

As a preliminary to this study, the equipment is being used for determining the normal range of lung volumes and capacities in Indians.

Sponsored Research

Avian Adrenal Gland—A histochemical study of suprarenal gland in adult and juvenile male and female pigeons (*Columba livia*) has been carried out.

Histochemical preparations of the adrenal cortex contain sudanophilic lipids, fatty acids, cholesterol, corticoids, ascorbic acid, *para*-amino salicylic acid, polysaccharides, nucleic acids and phosphatases; plasmalogen and carbonyl containing substances are absent. A distinct cytochemical zonation in the distribution and concentration of neutral fats, cholesterol, ascorbic acid and alkaline phosphatase has been observed.

The adrenomedullary tissue of the pigeon is rich in acetal phosphatide metachromatic substances and acid phosphatases. On the basis of this observation, a chemophysiolgical relationship between these substances has been postulated. Using the Hillarp and Hokfelt's

technique, it has been shown that noradrenaline is the principal medullary secretion—A. GHOSH, D. SINGH, (Miss) I. RAY, B.B. PATRA & (Miss) M. ROY, University College of Science & Technology, Culcutta.

Cholesterol Metabolism—A comparative study of the hepatic synthesis and utilisation of cholesterol has been carried out in male and female rats.

The *in vitro* synthesis of cholesterol from 1-C^{14} acetate by liver slices and microsomal particles is markedly altered by the administration of testosterone and estradiol. The increased hepatic synthesis of cholesterol by the administration of male hormones is counteracted by the female hormone.

The female hormone helps the mobilization of cholesterol. The results suggest that endrocrinal influences exert a fine control over the cholesterol metabolism. An increase in plasma cholesterol in experimental animals is observed on removal of ovaries. The removal of testis from male rats results in a slight decrease in plasma cholesterol level, marked decrease in synthesis and slight increase in biological half-life of cholesterol—S. MUKHERJEE, (Mrs) SUDHA CHATTERJEE & (Mrs) ANITA ROY CHOWDHURY, University College of Science & Technology, Calcutta.

Organic Compounds of Zirconium and Thorium—The volatility and molecular complexity of alkoxides of zirconium and thorium have been determined.

The volatility of alkoxides increases appreciably and the molecular complexity decreases with increase in the ramification of alkyl group. For the same alkyl group, the molecular complexity increases as the radius of the central atom of the compound increases.

Zirconium derivatives have been prepared in non-aqueous media by alcoholysis of zirconium isopropoxide in benzene by azeotropic distillation. Their formation and stability in aqueous solutions have been studied by conductometric and potentiometric techniques.

Zirconium tertiary alkoxides are less volatile than their hafnium analogues. The derivatives of zirconium and thorium with α—hydroxy acids are highly hydrolysed even in aqueous solutions, but zirconium tetra-mandelate is insoluble even in concentrated acids—R. C. MEHROTRA, University of Gorakhpur, Gorakhpur.

Studies on Flames—The variation of intensities of C_2, CH and OH bands in flames has been examined spectrophotometrically. These radicals reach their maxima in intensity at the ratios 19, 21, and 24 respectively, as compared to 31 for a stoichiometric mixture.

The effect of impurities on the intensities in different bands was studied by introducing carbon dioxide and chlorine in the flame at five different air fuel ratios. The intensities of C_2 and CH bands decrease when carbon dioxide or chlorine are added. In the case of the OH band, however, carbon dioxide enhances while chlorine reduces the intensity—B.B. LAUD & L.M. SATHE University of Poona, Poona.

PATENTS & PROCESSES

Patents Accepted

73702 : *A process for the production of cyclopentadecanolide (exaltolide)*—V.V. Dhekne, B.B. Ghatge & S.C. Bhattacharyya, NCL, Poona.

PAKISTAN

978/61 (renumbered 111715) : *Improvements in or relating to the manufacture of phenylacetic acid*—S.H. Zaheer, B. Bhushan, S.I. Ahmad, I.K. Kacker, V. Krishnamoorthy & M.Z. Ahmad, RRL, Hyderabad.

U.K.

21942 : *A vehicle lamp device*—C.R. Gupta, NPL, New Delhi.

Process Ready for Exploitation

A process for producing ethyl acetoacetate, an intermediate used in the manufacture of Hansa Yellows and other yellow pigments, naphtol AS-G and synthetic drugs, has been developed at the National Chemical Laboratory, Poona. The cost of production by this process works out to about Rs. 7 per kg. Details of the process can be obtained from the Secretary, National Research Development Corporation of India, Mandi House, New Delhi.

Dr. Weissmann Jean Henri

Dr. Weissmann Jean Henri, a senior officer, French Institute of Petroleum, Paris joined the Indian Institute of Petroleum (IIP) on April 25, 1962. This brings the total number of experts assisting in the training of staff of IIP to seven.

Dr. Weissmann graduated from the Conservatoire Nationale des Arts et Metiers de Paris in 1952 and joined the Application Division of the French Institute of Petroleum, Paris as a research engineer. He carried out investigations on the determination of octane requirements of petrol engines. Lately, he has been engaged in the testing and critical examination of prototypes of engines. He obtained his Ingenieur-Docteur from the Faculte' des Sciences de l'Universite de Paris in 1961.

Dr. B.C. Roy

We record with deep regret the demise, due to heart failure, of Dr. B.C. Roy, Chief Minister of West Bengal on July 1, 1962 at his residence in Calcutta. Dr. Roy was a member of the Society and the Governing Body of the Council of Scientific & Industrial Research; Chairman, Executive Council, IIBEM, Calcutta; and Chairman, Planning Committees of BITM, Calcutta and CMERI, Durgapur.

A meeting to condole the death of Dr. Roy was held at the CSIR Secretariat, New Delhi on July 3, 1962. Speaking on the occasion, Prof. M.S. Thacker referred to Dr. Roy's great services to the nation and his achievements as an outstanding leader and distinguished physician.

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CSIR NEWS

VOL. 12 NEW DELHI—JULY 23, 1962 : SRAVANA 1, 1884 No. 14

31.7.62

MEETINGS

• A meeting of the Executive Council of the Regional Research Laboratory, Jammu will be held in Srinagar on July 28, 1962. Shri Bakshi Gulam Mohammad, Prime Minister of Jammu & Kashmir, will preside.

• A meeting of the Executive Council of the Central Electronics Engineering Research Institute, Pilani will be held at Pilani on Aug. 9, 1962. Shri M. P. Birla will preside.

PERSONAL

Appointments

SHRI T. K. NATARAJAN—Senior Scientific Officer : Grade I, CRRI, New Delhi (June 16,1962).

SHRI K. KASHYAPA—Editor, Publications & Information Directorate, CSIR, New Delhi (July 10, 1962).

SHRI S.S. GHOSH—Curator: Grade I, BITM, Calcutta (July 7, 1962).

DR. K. VADALKAR—Information Officer, RRL, Assam (June 16, 1962).

SHRI S.B. LODH—Senior Scientific Officer: Grade II, RRL, Assam (April 17, 1962).

SHRI R.S. CHAKRAVARTY—Assistant Editor, Publications & Information Directorate, CSIR, New Delhi (July 10, 1962).

MRS. KAMALA RAMACHANDRAN—Assistant Editor, Publications & Information Directorate, CSIR, New Delhi (July 10, 1962).

DR. (MRS.) N. KAPIL—Assistant Editor, Publications & Information Directorate, CSIR, New Delhi (July 16, 1962).

SHRI V. S. SHUKLA—Junior Scientific Officer, RRL, Assam (April 27, 1962).

DR. R.N. DHAR—Junior Scientific Officer, RRL, Jammu (July 4, 1962).

SHRI B.L. SHARMA—Photographic Officer, CRRI, New Delhi (April 27, 1962).

* * *

DR. V. SUBRAHMANYAN, Director, CFTRI, Mysore has been re-nominated Chairman, and Dr. Y. Nayudamma, Director, CLRI, Madras, member of the Technological Research Sub-Committee of the Indian Central Arecanut Committee, Kozhikode.

DR. S. HUSAIN ZAHEER, Director, RRL, Hyderabad has been nominated advisory member of the State Medical Research Board, Government of Andhra Pradesh.

DR. N.K. PANIKKAR, Director, Indian Programme of the International Indian Ocean Expedition, New Delhi has been nominated member of Panel of Experts on Fisheries and the Advisory Committee of the F.A.O.

DR. K. WOLF, Unesco expert attached to CLRI, Madras left for Switzerland on May 19, 1962 on completion of his assignment.

SARVASHRI S. BAGCHI, Deputy Director and S. RAMACHANDRA, Senior Scientific Officer, CMRS, Dhanbad have been nominated principal and alternate members of the Safety Factors for Aerial Rope Wires Study Group of the Indian Standards Institution.

CFRI Foundation Lecture

Prof. Humayun Kabir, Union Minister for Scientific Research & Cultural Affairs will deliver the eleventh Foundation Lecture of the Central Fuel Research Institute, Jealgora, on Saturday, July 28, 1962. The theme of the Lecture will be "Science & the Modern World".

DR. J.M. DAVE, Assistant Director, CPHERI, Nagpur has been nominated member of the Chemical Hazards Sectional Committee of the Indian Standards Institution.

DR. D.L. SUBRAHMANYAM, Assistant Director, CEERI, Pilani has been nominated member of: (i) Defence Electronics Research Committee of the Ministry of Defence; (ii) Panel for Electronics & Wireless Equipment Industry of the Ministry of Commerce & Industry; (iii) Radio & Cable Board of the Ministry of Transport & Communications; and (iv) Electro-Technical Division Council of the Indian Standards Institution.

DR. S. SEN, Assistant Director, CGCRI, Calcutta has been nominated member of the Ceramic Panel of the Development Council for Glass & Ceramic Industry, Ministry of Commerce and Industry.

DR. GYAN MOHAN, Senior Scientific Officer, NPL, New Delhi returned to India after participating in the 1962 International Conference on High Energy Physics at Geneva as a member of the delegation sponsored by the Department of Atomic Energy.

SHRI S. RAMCHANDRA, Senior Scientific Officer, CMRS, Dhanbad has been nominated alternate member of the Suspension Gears Sub-Committee of the Indian Standards Institution.

DR. S.S.S. AGRAWALA, Senior Scientific Officer, CEERI, Pilani has been nominated member of the Electronics Components Sectional Committee of the Indian Standards Institution.

DR. S. S. BHATNAGAR, Senior Scientific Officer, NML, Jamshedpur has been nominated member of the Research Panel, Ball and Roller Bearings Sectional Committee of the Indian Standards Institution.

B R I E F S

Studies on Fish Flour : U.S. Aid to CFTRI

The Central Food Technological Research Institute, Mysore will receive financial assistance to the tune of Rs. 2.5 lakhs from the Bureau of Commercial Fisheries of the U.S. Government for intensifying investigations on the preparation, chemical analysis and nutritive value of deodorised edible fish flour. An agreement has been entered into to this effect between the U.S. Government and the Council of Scientific and Industrial Research.

The two-year project aims at a specialised approach to the problems involved in the production of edible fish flour.

Industrial Museum : Popular Science Gallery

A gallery on Popular Science, depicting the applications of electronics, optics, mechanics, electricity, sound, etc., is a new addition to the Birla Industrial & Technological Museum, Calcutta. This gallery was opened to the public on July 11, 1962. It includes a wide range of 'live' exhibits including an audiometer, microprojector, phenakistoscope showing the origin of the motion picture, different types of microscopes, automatic water tap, exhibits on the science of perception, and models demonstrating the principles of momentum. "Tomorrow's Drawing Room" is an interesting exhibit in this gallery.

Research Fellowships

The following have been awarded CSIR Fellowships under the research schemes noted against their names.

Senior Fellowships :

SHRI NIRMALENDU DATTA—*Studies on the comparative electrochemical properties of alkyl, carboalkoxyl, and similar groups* (School of Tropical Medicine, Calcutta).

SHRI CHITTARANJAN LAHIRI—*Chemical and analytical studies on air pollution in Calcutta* (University College of Science & Technology, Calcutta).

Junior Fellowships :

SARVASHRI A.V.S. MURTHY & M.P.M. REDDY—*Sea wave recording and wave refraction studies in relation to coast line formation* (Andhra University, Waltair).

SHRI INDRAJIT DAS—*Studies on plant phosphatases* (School of Tropical Medicine, Calcutta).

SHRI S.K. BHATIA—*Experimental hybridization in ferns* (Panjab University, Chandigarh).

SHRI M.R. LAKSHMANAN—*Visual pigments* (Indian Institute of Science, Bangalore).

* * *

The following research schemes have been terminated.

(*i*) *Culture of immature legume embryos*—Indian Institute of Technology, Kharagpur (March 22, 1962); (*ii*) *Investigation of surge-voltage distribution in transformer windings and impulse strength of transformer*—Indian Institute of Science, Bangalore (June 30, 1962).

Wealth of India—Raw Materials : Vol. VI

Another volume of *The Wealth of India*—an encyclopaedia on the raw material resources and industrial products—has been published by the Council of Scientific and Industrial Research. The present volume, which is the sixth in the series on Raw Materials, covers a wide field of plant, animal and mineral resources of the country. It includes 388 entries of which 367 are on plants, 11 on animals and animal products, and 10 on minerals. Some of the important plant materials dealt with are : Mangoes (*Mangifera*), Bananas (*Musa*), Apples (*Malus*), Mulberry (*Morus*) and Litchi (*Litchi*) among fruits; Linseed (*Linum*) and Mahua (*Madhuca*) among oilseeds; Tapioca (*Manihot*), Lentils (*Lens*) and Kesari (*Lathyrus*) among food plants; Tomato (*Lycopersicon*), Sponge gourd (*Luffa*) and Mint (*Mentha*) among vegetables; Kamala (*Mallotus*) and Henna (*Lawsonia*) among dyes; and Nutmeg and Mace (*Myristica*) among spices; it includes also a large number of plants of medicinal value. The volume includes an article on lac, a versatile material used in electrical, plastic, adhesive and wood finishing industries. Articles on lignite, limestone, manganese, mica and monazite are also included.

The articles are based on critical evaluation of information collected and collated from various sources and are presented in a manner understandable and useful to both laymen and technical personnel. Selected references to original sources of literature have been provided to help those interested in further details.

The 484-page publication (price, Rs. 40 per copy), printed on art paper (demy 4to) includes 14 plates and 185 text figures.

The publication will be released for sale on August 6, 1962.

Fish and Fisheries

A 132-page illustrated supplement to Vol IV of the Wealth of India on Fish and Fisheries, has been published by the Council of Scientific & Industrial Research. The supplement deals with marine and inland fish resources and fisheries in India. It provides information on the characteristics and economic importance of Indian elasmobranchs and teleosts, marine and inland fisheries, fishing craft and gear, and composition of fish, their preservation, marketing and trade. Information on some of the aquatic crustaceans and molluses is also given.

Cashew and Spices

A revised edition of the pamphlet entitled 'Cashew and Spices' has been brought out by the Central Food Technological Research Institute, Mysore.

The 16-page pamphlet presents information on methods worked out at the Institute for utilizing cashew apple, garlic, pepper, turmeric, ginger, mustard, asafoetida, red chillies and tamarind. Besides utilisation aspects, information on active principles, their extraction and concentration is also provided.

Training in Microwaves

A one-month practical training course in Microwaves, arranged by the CSIR Radio Research Committee, will commence at Agra (509, Army Base Workshop, E.M.E.) in early September 1962. The course is intended for those who are engaged in microwave research and development in universities, research institutes and government establishments.

Institutions interested in sponsoring candidates to attend the course may send particulars to the Secretary, CSIR, Rafi Marg, New Delhi, by *July 30, 1962*.

RESEARCH IN PROGRESS

National Laboratories

CFRI, JEALGORA

Asbestos-Cement Sheets from Indian Asbestos—Studies on amphibole asbestos has indicated the possibility of its utilization, after treatment, for the production of flat and corrugated asbestos-cement sheets and pipes. The chrysotile variety of asbestos, now used in India for the manufacture of asbestos-cement sheets, is mostly imported.

Amphibole variety of asbestos from Seraikhela, Dholani & Bankasahi (Bihar) and Jalainala (Madhya Pradesh) have been examined. The fibres are treated with a surface active agent for 6 hr, washed free of the reagent, shaken and allowed to stand for one hour. It is then added to a cement slurry and the mass agitated for some time; it is then passed through a 36-mesh sieve and injected into sheet forming moulds and subjected to a hydraulic pressure of 800 lb./sq. in. to squeeze out the water and ensure a water-cement ratio of 0.35-0.40. The sheets are weathered for a day on a supporting base and then immersed in water for at least 28 days for curing. Asbestos-cement pipes (up to 4 in. diam.) and corrugated sheets of high transverse strength have also been produced.

CFRI, JEALGORA—Asbestos-cement pipes fabricated by the Institute

CBRI, ROORKEE

Column Loudspeakers for Acoustic Correction—An economic method for acoustic correction of highly reverberant halls and thereby improving the clarity of speech has been developed. It is particularly suitable for reducing reverberation time in halls with pleasing architectural features as it obviates the need for fixing sound absorbing materials.

The method consists in installing a column loudspeaker (a set of loudspeakers mounted on a vertical column) in the hall. Sound waves emerge from the column as a well defined beam directed to the audience, and delayed sound reflections from remote parts of the hall are avoided. Studies in a medium-sized, highly reverberant convocation hall have shown that an installation of the type with an amplifier of restricted frequency range provides a high ratio of direct to reverberant sound and results in considerable improvement in the audibiliy of speech.

CFTRI, MYSORE

Preservation of Fruit Pickles—A proper balance between salt and organic acids is essential for the preservation of brine pickle. Faulty practices leading to imbalance in these constituents are often the cause of microbial spoilage during storage.

An emulsion which can make up the deficiency of salt or acids and prevent microbial spoilage in brine pickle at 10 per cent level, has been developed at the Institute. It contains acetic acid and naturally occurring microbe inhibitory factors, like orange peel oil, mustard powder and turmeric powder, as active ingredients. The emulsion can also be used to cure fruits in low strength brine.

RRL, HYDERABAD

A New Anti-convulsant Drug—N-2-(4-morpholino) ethyl-1,2,3,4-tetrahydroquinoline, synthesised in the Laboratory shows anticonvulsant activity of the same order as 2-methyl-3-*ortho*-tolyl-4-quinazolone. Like reserpine, it develops ptosis in mice, does not reduce conditioned avoidance response and antagonises histamine-induced muscle spasms. On isolated smooth muscle, it consistently antagonises acetyl choline effects. The compound reduces the spasms induced by barium in rat and rabbit ileum, but unlike reserpine it enhances spasms in guinea pig ileum. Atropine does not check its stimulating effect—G.S. SIDHU, G. THYAGARAJAN & S.H. ZAHEER.

RRL, JAMMU

Cultivation of English Peppermint—Two varieties of English peppermint, viz., *Mentha piperita* var. *vulgaris* Sole (Black mint) and *M. piperita* var. *officinalis* (White mint) have been introduced in the Kashmir valley. Studies have shown that the yield of peppermint oil from both varieties is satisfactory.

English peppermint oil, which is at present imported, is used in a number of pharmaceutical preparations.

NAL, BANGALORE

Energy Output of Wind Generators—Estimates of monthly and annual energy output of the Allgaier 7.5 kW and Dowsett Holdings 25-kW. wind electric generators have been worked for 12 stations in India

The output per kW. of installed capacity and the cost per kW. at selected stations have also been computed for each of the two generators. These studies, carried out at the National Aeronautical Laboratory, indicate that the Allgaier generator can be economically used at many places in the country for generating energy from wind. The use of Dowsett Holdings generator is economical at exceptionally windy sites.

At Veraval—the windiest station considered—the Allgaier machine yielded about 14,700 kWh. in a year, whereas the Dowsett Holdings machine gave about 18,500 kWh. The output per kW. of installed capacity of the Dowsett Holdings plant is only 20-40 per cent of the corresponding value for the Allgaier generator.

Assuming the capital costs of both machines to be Rs. 2,000 per kW. of installed capacity, the cost per kWh. for the Allgaier generator works out to 12 nP. for Veraval and 24-27 nP. for Bhopal, Gopalpur and Madras. For the Dowsett Holding generator, the cost per kWh. ranges from 33 nP. for Veraval to Re. 1 for Madras. At other stations the cost estimates for both generators are higher.

Detailed results of the study are given in the Technical Note No. TN-WP-4-62 (R. Ramanathan & S. Viswanath) recently issued by the Laboratory.

Sponsored Research

Amino Acids in Tumourous Plant Cells—Tumours in plants were induced by treatment by one of the following chemicals : Gammexane, chloral hydrate, colchicine and naphthalene acetic acid. The effect of these chemicals is less pronounced in dicotyledonous plants than in monocotyledonous plants. Investigations on the localisation of amino acids indicate that arginine, typtophane and tyrosine are present in tumourous plant cells. The concentration of tryptophane is less than that of tyrosine in the non-basic fraction of the chromosome protein. Tyrosine has been localised in the enchromatic part of the chromosome—A. K. SHARMA & (MRS.) MANDIRA SARMA, University College of Science, Calcutta.

PATENTS & PROCESSES

Patent Filed

82822 : *A process for the manufacture of high alpha cellulose dissolving grade pulps by alkaline pulping methods*—G.M. Vyas, D.S. Bendale & M.B. Mahajan, NCL, Poona.

Patent Accepted

PAKISTAN

111825 : *Investments in or relating to the production of alpha-halotoluenes*—S. H. Zaheer, B. Singh, B. Bhushan, S.I. Ahmed, I.K. Kacker, V. Krishnamoorthy & M.Z. Ahmed, RRL, Hyderabad.

Patents Sealed

71333 : *Improvements in or relating to exterior house paints*—Atma Ram, S.B. Roy & H. D. Sircar, CGCRI, Calcutta.

72264 : *Metal detector*—G. S. Rangan & P.N. Tancja, NPL, New Delhi.

Process Leased Out

A process for making Liquid Gold developed by the National Metallurgical Laboratory, Jamshedpur has been leased out for commercial exploitation to *Cork Products Agency*, P-36, India Exchange Place, Calcutta by the National Research Development Corporation of India.

Process Ready for Exploitation

A process for producing Synthetic Cryolite, using indigenous raw materials, has been worked out at the Central Electrochemical Research Institute (CECRI), Karaikudi.

Hydrofluosilicic acid obtained as a by-product in superphosphate manufacture is used as the source of fluorine. It is possible to produce about one ton of cryolite from a 100-ton per day superphosphate plant.

Details of the process are available from the Director, CECRI, Karaikudi, on payment of a fee of Rs. 2,000.

NEW PUBLICATIONS

THE WEALTH OF INDIA

A Dictionary of Indian Raw Materials and Industrial Products

RAW MATERIALS, VOL. VI (L-M)

Provides a comprehensive survey of published information on the distribution, availability and utilization of Indian natural resources. Contains 388 entries—367 on plants. 11 on animals and animal products and 10 on minerals.

Pp. xxxi+484+xiv; Demy 4to; Rs. 40.00

Release date : August 6, 1962

Botanical Monograph No. 2

MARSILEA

by

K. M. Gupta

Department of Botany, Government College, Ajmer

Pp. viii+113; Royal 8vo; Rs. 16.00

Copies available from :

The Under Secretary, Publications Directorate,
CSIR, Rafi Marg, New Delhi-1

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INDIANS ABROAD DIRECTORY

Directory of Indian Scientific & Technical Personnel abroad (ST—14) issued by the National Register Unit, CSIR. Gives the names and particulars of 156 qualified scientists who have returned to India or about to return.

Printed and published by Shri B.N. Sastri, Council of Scientific & Industrial Research, New Delhi at Asia Press, Delhi-6
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CSIR NEWS

21-8-62

VOL. 12 NEW DELHI—AUGUST 13, 1962 : SRAVANA 22, 1884 No. 15

MEETINGS OF EXECUTIVE COUNCILS & RESEARCH COMMITTEES

Executive Councils

CFTRI, Mysore	Aug. 23, 1962	CFTRI, Mysore Chairman : Shri S. Nijalingappa
CECRI, Karaikudi	Aug. 28, 1962	CSIR Secretariat, New Delhi. Chairman : Shri C. Subramaniam
CLRI, Madras	Aug. 30, 1962	Madras University Buildings, Madras Chairman : Dr. A. Lakshmanaswami Mudaliar

Research Committees

Pharmaceuticals & Drugs Research Committee	Aug. 29, 1962	CSIR Secretariat, New Delhi. Chairman : Dr. K.A. Hamied
Physical Research Committee	Sept. 8, 1962	Physical Research Laboratory, Ahmedabad Chairman : Dr. Vikram A. Sarabhai

Utilization of Hides

Various aspects of the utilization of hides with special reference to Indian conditions will be discussed at a symposium being organized by the Central Leather Research Institute (CLRI), Madras in January, 1963. The three-day symposium co-sponsored by the Indian Leather Technologists' Association, is timed to coincide with the Decennary Celebrations of the establishment of the Institute.

The symposium is of topical interest in view of the growing consciousness for fuller and better utilization of hides to meet the increasing demand for footwear and leather goods in the country and the important contributions made by CLRI in this respect.

Leather chemists and technologists, tanners, hides and skins collectors, exporters and importers of leather products, and representatives of various organizations connected with leather trade industry are expected to participate in the symposium.

The symposium will cover the following aspects :

Structure and Chemistry of Hides and Hide Proteins—Histological aspects: Post and antemortem defects and remedies ; curing, preservation, defects, transport ; biochemical studies ; bacteriological studies, and animal husbandry.

Process Studies : Techniques of manufacture of light, heavy, industrial and speciality leathers ; physical and chemical properties of leathers ; and mechanism of tannage.

Economics : Statistical data on availability of hides ; exports and imports of raw hides, tanned, and finished leathers ; and process economics.

The symposium will be followed by a conversazione of the members of the organizations connected with the Hides and Skins Improvement Society.

Intending participants may send summaries of their papers to the Convener, Symposium Committee, CLRI, Madras before Sept. 1, 1962. Full text of papers should reach him before Oct. 1, 1962. Since arrangements have been made for translations, papers may be presented in English or any other language.

Prof. M.S. Thacker

Prof. M.S. Thacker, Director-General, Scientific & Industrial Research, left for London on Aug. 5, 1962 for an eye operation.

RRL, Hyderabad - President Dr. S. Radhakrishnan visited the Laboratory and addressed the staff on July 17, 1962. Picture shows Dr. S Husain Zaheer, Director, welcoming the President.

B R I E F S

Prime Minister visits RRL, Hyderabad

Prime Minister, Shri Jawaharlal Nehru, accompanied by Mrs. Vijaylaxmi Pandit, visited the Regional Research Laboratory, Hyderabad on July 19, 1962. They were shown round the various divisions of the Laboratory by the Director, Dr. S. Hussain Zaheer. Later, Shri Nehru addressed the scientific staff of the Laboratory.

Scientific Instruments : Information Service Started

An information service has been recently started by the Central Scientific Instruments Organisation (CSIO) to handle enquiries concerning scientific instruments.

Manufacturers and dealers of scientific laboratory apparatus (electrical, electronic, optical, etc.) are invited to keep the organisation informed about their products, supported by technical literature and prices wherever possible.

All communications in this respect are required to be addressed to the Director, CSIO, CSIR Building, Rafi Marg, New Delhi-1.

Marsilea : Botanical Monograph No. 2.

This 114-page illustrated monograph (Author : K.M. Gupta)—the second in the series of monographs initiated by the Botanical Monographs Committee of CSIR—deals with the distribution, morphology, anatomy, development, cytology and ecology of the genus which has received the attention of botanists all over the world. It also gives a detailed account of systematics and speciation in the genus and includes an index and 43 illustrations.

Copies of the publication (price. Rs. 16) are available from the Under Secretary, Publications Directorate, CSIR, Rafi Marg, New Delhi-1.

Food Research

The Annual Report for 1960-61 of the Central Food Technological Research Institute, Mysore has been published.

The 112-page report presents the work carried out by the Institute under the following heads : storage and preservation of perishables, infestation control and pesticide research, biochemistry and nutrition, dietetics, food processing, fruit technology, arecanut technology, meat and fish technology, microbiology and sanitation, food engineering, packaging and containers, regional research stations and information, statistics and extension services.

The utilization of tuber crops, particularly tapioca and of edible quality oilseed meals in the form of flour and other processed products, and the standardization of procedures for the production of cheap protective foods are highlighted. The publications brought out, research papers published and the patents taken by the institute are included.

Road Abstracts

A new publication entitled *CRRI Road Abstracts* has been started by the Central Road Research Institute (CRRI), New Delhi and its first number containing abstracts of 207 articles has been issued recently.

The publication attempts, for the first time in Asia, to present under one cover abstracts of published works covering research on entire spectrum of highway engineering, emanating from Australia, Burma, Ceylon, India, Indonesia, Japan, Malaya, Pakistan, South Africa, East Africa and Thailand. Only papers reporting original research are surveyed ; articles of purely popular appeal and book reviews are not included.

P E R S O N A L

Appointments

Dr. B.L. Sen—Assistant Director, NML, Jamshedpur (June 29, 1962)

Dr. Rajendra Kumar—Assistant Director, NML, Jamshedpur (June 30, 1962).

Dr. M. Anandakrishnan—Senior Scientific Officer: Grade I, CRRI, New Delhi (June 18, 1962).

Sarvashri V.S. Bhandary and Prakash Narain—Senior Scientific Officers: Grade II, NML, Jamshedpur (June 6, 1962).

Shri K. K. Khanna—Senior Scientific Officer: Grade II, CSIR, New Delhi (June 20, 1962).

Shri Jatinder Mohan—Senior Scientific Officer: Grade II, NML, Jamshedpur (July 3, 1962).

Dr. K.V.N. Rao—Senior Scientific Officer, CECRI, Karaikudi (June 18, 1962).

CLRI Demonstration

Manufacture of cycle saddle leather by two processes developed at the Central Leather Research Institute (CLRI), Madras will be demonstrated at the Institute during August 20 to Sepembert 30, 1962.

Representatives of leather industry and tanneries who wish to attend the demonstration may send their particulars to the Director, CLRI, Madras.

Sarvashri B.S.R. Sastry & R. Raman—Junior Scientific Officers, CECRI, Karaikudi (July 4 & 19, 1962 respectively).

Shri A. K. Dutta—Accounts Officer (temporary), NML, Jamshedpur (March 31, 1962).

Dr. Atma Ram, Director, CGCRI, Calcutta has been nominated member of Metallurgy Advisory Committee of the Department of Atomic Energy.

* * *

Dr. B.R. Nijhawan, Director, NML, Jamshedpur left for U.S.A. and U.K. on August 4, 1962 leading a seven-member productivity team on non-ferrous metal industry', sponsored by the National Productivity Council. During its nine-week tour the team will study the techniques of production, plant and equipment used and optimum productivity achieved in the non-ferrous metal industry. On its return, the team will submit a report embodying its recommendations for increasing productivity in the Indian non-ferrous metal industry.

Dr. N.K. Panikkar, Director, Indian Programme of International Indian Ocean Expedition returned from U.K. after participating in the working meeting on the coordination of operating plans in the Arabian Sea, held at the National Institute of Oceanography, Surrey from July 9 to 11, 1962. Dr. Panikkar also visited the Marine Biological Laboratory, Plymouth to make arrangements for equipment required by Indian ships for the International Indian Ocean Expedition.

RESEARCH IN PROGRESS

National Laboratories

NML, JAMSHEDPUR

Production of Ferro-chrome—The ferro-alloy furnace installed recently at the Laboratory (*CSIR News*, Vol. 12, No. 6, p. 2) has been commissioned. Using chrome ore from Orissa, coke obtained for coal from Khas Kenda collieries and quartzite from Singhbhum as raw materials, high carbon ferro-chrome of standard specification has been produced.

Production of Pig Iron from Mohindergarh—At the instance of the Panjab Government, extensive smelting trials were carried out in the low shaft furnace pilot plant using iron ore from Mohindergarh area. Various solid fuels, such as noncoking coals, low temperature carbonised coke made from noncoking coals and nut coke, and normal fluxing quality of limestone were employed. The trials showed that the smelting characteristics of this iron ore are significantly different from those of hematite and that the ore can be successfully smelted for the production of foundry grade of pig iron.

NML, Jamshedpur—Tapping of ferro-chrome from pilot-submerged arc smelting furnace

CFTRI, MYSORE

Amyloglucosidase from Fungal Sources—Acid hydrolysis is commonly employed for obtaining dextrose syrup from starch. A recent and novel technique has been developed for breaking down starch using enzymes. The advantages of this technique are economic yields, and prevention of undesirable bitter reaction products associated with acid hydrolysis. Hence, investigations were taken up at the instance of the starch industry on the production of the enzyme amyloglucosidase, using a strain of *Aspergillus niger* under submerged conditions of growth. The results so far obtained indicate the presence of an enzyme which breaks up starch almost quantitatively to glucose units.

Dehydration of Green Peas—Several varieties of peas grown in Uttar Pradesh, Mysore and Madras have been investigated for their suitability for drying. It has been found that commercially available, wrinkled varieties like *T19*, *Fordhook Wonder*, *Cape* (*Baradari Special*) and *Mammoth Podded extra Early* are suitable for dehydration. Conditions for improving the texture, colour and the rehydration characteristics of the dehydrated product have been worked out.

CDRI, LUCKNOW

Peptic Ulcers—Fresh juice of cabbage (*Brassica oleracea* var. *capitata*) has been found to heal in about 120 hr experimental peptic ulceration induced by histamine or phenylbutazone in guinea pigs. The healing is related to the significant increase of mucin in the gastric juice.

CLRI, MADRAS

Preservation of Delimed Pelts—The comparative efficiencies of sulphuric acid-salt and naphthalene sulphuric acid-salt for pickling delimed pelts were studied. After 4 days' storing of the pickled pelts in the wet condition the mould growth was predominantly *Aspergillus niger* in the former case, whereas in the latter, it was something different. Addition of 0.1 per cent of sodium pentachlorophenate to the naphthalene-sulphuric acid treated pelt prevented mould growth for 15 days.

CPHERI, NAGPUR

Polythene Pipes for Water Supply—The suitability of polythene pipes for use in water supply was taken up for study. Preliminary studies with the pipes laid in the premises of the Institute have indicated that they do not support the growth of any bacteria (saprophytic or pathogenic).

Sponsored Research

Infra-red Spectroscopy of Polyatomic Molecules—The near ultraviolet absorption spectra of *m*- and *p*-methylanisoles, *o*-, *m*-, and *p*-methylphenetoles and *o*- and *p*-chlorophenetoles have been investigated in the vapour, liquid and solid phases.

The Raman spectra of the three isomeric methylphenetoles and of *o*- and *p*-chlorophenetoles have been obtained in the liquid state, and the frequencies as well as their visually estimated intensities observed in the spectra of the respective molecules has been listed.

The infra-red absorption spectra of the three isomeric methylphenetoles, *o*- and *p*-chlorophenetoles and *m*-methylphenetole have been obtained in the liquid state in the regions 1—15μ and 13—240μ.

The assigned fundamentals in the infra-red absorption spectra have

been correlated with the observed fundamentals in the ultra-violet absorption spectra and Raman data. The CH_3 bending frequency has been found to occur as a prominent fundamental in almost all the cases. Molecules containing methyl group and a methoxy or ethoxy group have another frequency in the region 1100 to 1200 A, which may perhaps be another CH_3 symmetric bending frequency. The CH_3 symmetric bending vibration gives rise to a very strong infra-red absorption peak and an intense polarised Raman band in all the cases. In ultra-violet absorption, it occurs in combination with the other prominent fundamentals and forms a progression.

In methylanisoles, the frequency observed in the region 700 to 800 A has been interpreted as C-OCH_3 stretching frequency, occurring as a very intense band in ultra-violet absorption and forming a progression. It also appears in combination with other fundamentals. The corresponding vibration gives rise to an intense and well polarised Raman band in the case of *p*- and *m*-methylanisoles.

The totally symmetric carbon vibrations give rise to intense and polarised Raman bands for all these compounds—K. Rangadhama Rao & K.V. Rameswara Row, Andhra University, Waltair.

PUBLICATIONS

Technical Manpower : Pool Supplement : National Register Unit, CSIR, New Delhi—Includes particulars of 68 persons who have been recently selected and offered positions in the Scientists' Pool.

Building Digest, No. 8, CBRI, Roorkee—Details relating to the preparation of building lime.

Fungi of Uttar Pradesh : Bull. No. 62, 1962, NBG, Lucknow—A list of 1291 species belonging to 416 genera of fungi reported from Uttar Pradesh till the end of 1961. Includes a bibliography and an index.

Estimated Annual Energy output of Two Types of Wind Electric Generators at Selected Stations in India, No. TN-WP-4-62, NAL, Bangalore—Gives estimates of the total electrical energy that Allgaier 7.5 kW. and Dowsett Holdings 25 kW machines can generate at 12 selected windy sites in India.

PATENTS & PROCESSES

Patent Accepted

72639 : *A method of making yellow coloured bricks from alluvial soils*—L.C. Jain & P.C. Jain, CBRI, Roorkee.

Patents Sealed

71092 : *A process for the manufacture of citric acid*—M. R. R. Raghavendra Rao & J.R. Vakil, NCL, Poona.

71190 : *Preparation of anion-exchange resin*—N. Krishnaswamy, K.P. Govindan & B.D. Dasare, NCL, Poona.

71944 : *Improvements in or relating to the manufacture of phenyl acetic acid*—S.H. Zaheer, B. Singh, B. Bhushan, S.I. Ahmed, I. K. Kacker, V. Krishnamoorthy & M.Z. Ahmad, RRL, Hyderabad.

72408 : *A process for separation and isolation of the aromatic principles of* Abelmoschus moschatus *seeds* —C. Misra, V.N. Sharma, C. Mitra & K.N. Kaul, NBG, Lucknow.

73067 : *A process for the use of indigenous asbestos in the manufacture of asbestos cement sheets*—N. Biswas, S. N. Mukherjee, S. K. Majumdar, N. C. Banerjee, P. B. Dutta & A. Lahiri, CFRI, Jealgora.

U.S.A.

3043856 : *Removal of gossypol from cottonseed products*—T. R. Seshadri & K. Chander, University of Delhi, Delhi.

Process Leased out

The process for hot dip aluminising of ferrous materials (Indian Pat. Nos. 55289, 57938 and 65230) developed by the National Metallurgical Laboratory, Jamshedpur has been leased out for commercial exploitation to one more firm, namely, the *Vij Industries Private Ltd.*, 70/72 Bombay Mutual Buildings, Sir Phiroz Shah Mehta Road, Bombay-1 by the National Research Development Corporation of India.

Process Ready for Exploitation

A process for producing electrical insulating varnishes from cashewnut shell liquid and fusel oil (Indian Pat. No. 55171) has been developed at the National Chemical Laboratory, Poona.

The process involves the condensation of cashewnut shell liquid, fusel oil titanate (or silicate) and formaldehyde under controlled conditions. The resin obtained is cooked with a drying oil to produce an oil modified product. The varnishes are cured by baking at 100°C. for 2 to 4 hr.

One of the advantages of the process is that the products obtained have superior moisture, acid and alkali resistant properties than most of the phenol formaldehyde resins. The low liberation of volatile matter from these products even at high temperatures is an added advantage.

The equipment required for the process consists of a reactor kettle, filter, distillation and reflux assembly, open cooking metal pot and open mixing vessel.

Parties interested in the commercial development of the process may contact the Executive Director, National Research Development Corporation of India, Mandi House, New Delhi.

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CSIR NEWS

VOL. 12 NEW DELHI—AUGUST 27, 1962 : BHADRA 5, 1884 No. 16

MEETINGS OF EXECUTIVE COUNCILS & RESEARCH COMMITTEES

5/12/62. MYSORE

Executive Councils

CSMCRI, Bhavnagar	Aug. 31, 1962	CSMCRI, Bhavnagar, 11.00 a.m. Chairman : Dr. Jivaraj N. Mehta
RRL, Hyderabad	Sept. 6, 1962	Hyderabad, 2.30 p.m. Chairman : Shri P.V.G. Raju, Education Minister, Andhra Pradesh
CIMPO, New Delhi	Sept. 7, 1962	CSIR Secretariat, New Delhi, 10.30 a.m. Chairman : Shri P.A. Narielwala
NCL, Poona	Sept. 14, 1962	NCL, Poona, 10.00 a.m. Chairman : Shri P.A. Narielwala
NPL, New Delhi	Sept. 15, 1962	Conference Room NPL, New Delhi, 11.00 a.m. Chairman : Dr. A. Ramaswami Mudaliar

Research Committee

Pharmaceuticals & Drugs	Sept. 10, 1962	CSIR Secretariat, New Delhi, 10.30 a.m. Chairman : Dr. K.A. Hamied

Utilization of Cotton Linters

The Research and Industry Meet to discuss the various aspects of utilization of cotton linters and their upgrading will be held on Sept. 28 and 29, 1962 (not on Sept. 6 & 7, 1962 as announced earlier) at the Regional Research Laboratory, Hyderabad.

P E R S O N A L

Appointments

SHRI M. A. RAMASWAMY—Engineer Officer: Grade I, NAL, Bangalore (July 26, 1962).

SHRI A.C. MAZUMDAR—Senior Scientific Officer : Grade I, CFRI, Jealgoa (July 31, 1962)

DR. B. K. K. NAYAR—Senior Technical Officer: Grade, I, National Register Unit, CSIR, New Delhi (Aug. 17, 1962).

SHRI D.K. MUKHERJEE—Senior Scientific Officer : Grade II, CFRI, Jealgora (July 31, 1962)

SHRI A.K. GANGULY—Junior Scientific Officer, CFRI, Jealgora (July 31, 1962)

SARVASHRI, B. CHAKRABORTY, T.R. BALASUBRAMANIAM & SHRI JAGJIT SINGH—Junior Scientific Officers, CMRS, Dhanbad (July 3, 9, & 23, 1962).

SARVASHRI K.G. NADAR & M.N. SEETHARAMAN—Junior Scientific Officers, NAL, Bangalore (July 26, 1962).

SHRI G.C. MONDAL—Commercial Artist, BITM, Calcutta (Aug. 6, 1962).

* * *

DR. A.N. KAPPANNA, Director, CSMCRI, Bhavnagar proceeded on leave prior to retirement on Aug. 1, 1962.

* * *

DR. V. SUBRAHMANYAN, Director, CFTRI, Mysore who had been on a world tour covering visits to leading scientific organisations and research centres in Europe, U.S.A., Canada, Japan, Philippines, Australia, New Zealand, Malayasia and Thailand returned to Mysore on Aug. 8, 1962. He received the Babcock-Hart Award at the Annual Meeting of the Institute of Food Technologists at Miami Beach. During his visit to Canada, he had talks with the members of the Canadian Freedom from Hunger Committee on the proposal for the establishment of a regional training centre in food technology for Asia and the Far East within the campus of the CFTRI, Mysore.

SHRI A. BOSE, Officer-in-Charge, BITM, Calcutta returned to India after completion of his four-week study tour to West Germany, Holland and France.

SHRI R.D. GUPTA, Senior Scientific Officer, NML, Jamshedpur returned from U.K. after completion of his training at Edward High Vacuum Ltd., Sussex.

DR. V. SUBRAHMANYAN, Director, CFTRI, Mysore has been nominated Chairman of the Technological Sub-Committee of the Indian Central Coconut Committee.

DR. B. MUKERJI, Director, CDRI, Lucknow has been nominated member of Physiology & Pharmacology, Indigenous Drugs and Clinical Research Advisory Committees of Indian Council of Medical Research.

DR. B. R. NIJHAWAN, Director, NML, Jamshedpur has been nominated member of the Steering Group constituted by the Ministry of Steel and Heavy Industries to consider Advance Action for the Fourth Plan in Iron and Steel.

DR. Y. NAYUDAMMA, Director, CLRI, Madras has been nominated member of Advisory Committee of Industrial Experts constituted by Indian Investment Centre.

(Contd. on p. 2, col. 3)

BRIEFS

International Indian Ocean Expedition

Four Indian vessels are participating in the International Indian Ocean Expedition. Disclosing this Prof. Humayun Kabir, Union Minister of Scientific Research and Cultural Affairs stated in the Lok Sabha that the facilities given by the Government of India are in the form of funds, sea going vessels and personnel, equipment, and research scientists. The Universities of Kerala, Madras and Andhra are sending some of their research workers. Of the participating vessels, one belongs to the Kerala University, who are also providing accommodation for the location of a centre for collection of biological specimens. (*Aug. 17, 1962*).

Fertilizer from Coal

Prof. Humayun Kabir, Union Minister of Scientific Research & Cultural Affairs, informed the Lok Sabha that a process for producing a new fertilizer from coal has been developed by the Central Fuel Research Institute, Jealgora. The process consists in oxidising coal in a fluidised bed, subsequent treatment with ammoniacal liquor and simultaneous oxidation and ammoniation of coal in a fluidization column in a mixture of air and ammonia.

Preliminary field trials are encouraging but large scale trials and pilot plant production experiments will have to be carried out before it is considered for propagation and manufacture on a commercial scale (*Aug. 17, 1962*).

* * *

Dr. P. M. Bhargava, Senior Scientific Officer in charge of the Biochemistry Section, RRL, Hyderabad has been awarded a gift of £8060 by the Welcome Trust of London for the purchase of an Analytical Ultracentrifuge (Spinco model) used for studies on high polymers. The ultracentrifuge has been presented by Dr. Bhargava to the RRL, Hyderabad.

* * *

The National Aeronautical Laboratory, Bangalore has been recognised as a centre of research leading to advanced degrees in physics and chemistry by the Andhra University, Waltair.

Research Fellowships

The following have been awarded Junior Fellowships for research in schemes noted against their names :

SHRI R. S. GAMBHIR—Measurement of thermal conductivity of gases and studies on related theoretical problems (University of Rajasthan, Jaipur).

SHRI B. M. S. KASHYAP—Lattice dynamical studies of ionic crystals with the help of diffuse X-ray scattering (University of Allahabad, Allahabad).

SHRI P.K. VERMA—Spectroscopic studies of polyatomic molecules (Banaras Hindu University, Varanasi).

SHRI S.P. SRIVASTAVA—Ultrasonic absorption by some organic liquids (University of Allahabad, Allahabad).

SHRI BUDDHADEB MAZUMDAR—A study on the nature of degradation of lignocellulosic substances with special reference to jute and allied bast fibres by the action of heat and light (Indian Jute Mills Association Research Institute, Calcutta).

SHRI Y.C. SHAH—Studies in corrosion of copper and its alloys. Prevention of dezincification of brasses by modifying the constituents of the alloy or by modifying the mediums : Atmospheric corrosion of typical metal alloys at Ahmedabad (Gujarat University, Ahmedabad).

SHRI RAJINDRA SINGH—Systematic chemical and metallurgical study of ancient Indian metals, alloys and coins (University of Allahabad, Allahabad).

SHRI P. HARINADHA BABU—Scour around bridge piers and abutments (Osmania University, Hyderabad).

MISS PREM KHANNA—Physiology of experimental ataxia (Presidency College, Calcutta).

SHRI O.S. CHAUHAN—Physiology of the *Lemnaceae* (University of Delhi, Delhi)

PERSONAL

(*Contd. from p. 1, col. 3*)

SHRI P.M. NABAR, Officer-in-Charge, CIMPO, New Delhi has been nominated member of Indigenous Drugs Advisory Committee of the Indian Council of Medical Research.

SHRI R.M. KRISHNAN, Assistant Director, NML, Jamshedpur has been elected to the Board of Advisers of the Institute of Engineering and Foundry Technology, Calcutta.

DR. S.H. ZAIDI, Assistant Director, CDRI, Lucknow has been nominated member of Industrial Health Advisory Committee of the Indian Council of Medical Research.

SHRI PREM PRAKASH, Assistant Director, NPL, New Delhi has been nominated member of the Panel for Bulk Milk Measures of the Indian Standards Institution.

PROF M.V. POPARDIKAR, Assistant Director, CPHERI, Nagpur has been nominated member of Environmental Hygiene and Sanitation Committee of the Indian Council of Medical Research.

DR. D.L. SUBRAHMANYAM, Assistant Director and Dr. G.N. Acharya, Senior Scientific Officer, CEERI, Pilani have been nominated principal and alternate members of the Railway Safety Devices Advisory Council of the Ministry of Transport and Communications.

SHRI M.R. VERMA, Senior Scientific Officer, NPL, New Delhi has been nominated member of the Panel for Rigid Foams of Polystyrene for Insulation and Thermosetting Powders and Resins Sub-Committee of the Indian Standards Institution.

SHRI P.S. VENKATACHALAM, Senior Scientific Officer, CLRI, Madras has been nominated member and convener of the Orthopaedic Leather Sub-Committee of the Indian Standards Institution.

DR. Y.N. TREHAN, Senior Scientific Officer, NML, Jamshedpur has been elected Fellow of the Institution of Chemists (India).

SHRI S. BHATTACHARJI, Junior Scientific Officer, CDRI, Lucknow has been awarded the Ph. D. degree of the Lucknow University for his thesis: *Chemical Investigation of Indian Medicinal Plants.*

RESEARCH IN PROGRESS

National Laboratories

CECRI, KARAIKUDI

Electrolytic Iodoform—Influence of current density, temperature and *p*H of the bath on the current efficiency in the electrolytic preparation of iodoform from ethyl alcohol has been studied using lead dioxide anode with a graphite substrate. The results obtained have been compared with those obtained with platinum and graphite anodes.

A *p*H range of 10-11 and a temperature of 60-62°C. during electrolysis have been found suitable. It is observed that iodoform can be prepared at a high current density (20-30 amp./dm²), and the product is much superior to that obtained with graphite anode and is comparable to that prepared with platinum anode. It has also been found that the use of rotatory anode considerably decreases the simultaneous formation of iodate as a by-product—R. RAMASWAMY, M.S. VENKATACHALAPATHY & H.V.K. UDUPA.

CRRI, NEW DELHI

Measurement of Moisture in Pavements—Variations of moisture content in cement concrete pavement results in the development of stresses. Hence, investigations were initiated for finding out suitable methods for determining moisture content at different levels of a cement concrete pavement.

Preliminary studies with plaster of Paris and sand-cement mortar moisture cell indicate that the resistance of the cell is very sensitive to moisture content and that results are reproducible. Experimental concrete slabs are being laid with plaster of Paris moisture cells for assessing the moisture variations during the yearly cycle.

Sponsored Research

Preservation of Neera—The lime conventionally used during tapping of *neera*, prevents its fermentation for short time but necessitates the tedious process of deliming prior to its conversion to *gur* or sugar. Studies were carried out for finding out a better preservative which not only prevents the fermentative spoilage for considerably longer time but also maintains natural characteristics and obviates the difficulties encountered during the subsequent processes of concentration of *neera* for preparing *gur* or sugar. Of the several antimicrobial substances tested, Paludrine has been found to inhibit the multiplication of the micro-organisms responsible for *neera* fermentation for a considerably longer time. Further, it can be completely removed from *neera* before preparing *gur* or sugar by percolating it through a closely packed column of alkali-activated paddy husk charcoal. A colour reaction test using sodium hypochlorite for ensuring the complete removal of Paludrine from *neera* has been developed.

Large scale field trials carried out at Udangudi, Tinnevelli Dt. (Madras State) and at Dahanu (Gujarat State) have shown that powdered Paludrine at a concentration of 100 mg./lb. preserves *neera* for over 48 hr without affecting its natural characteristics like flavour and *p*H. The syrup, *gur* and sugar obtained after passing it through activated charcoal column are free of Paludrine and are superior to those obtained by the traditional methods with regard to colour, flavour and nutritional qualities. The contents of B-vitamins and ascorbic acid are also much higher.

The process was modified by introducing stirring instead of percolation of Paludrine-preserved *neera* through activated charcoal column. The modification reduces the time of processing and the cost of production considerably. The applicability of this modification for larger scale exploitation has been established and the possibility of *neera* syrup being used as a base for pharmaceutical preparations has been investigated—P.S. SARMA, Indian Institute of Science, Bangalore.

Role of Riboflavin—The effect of riboflavin deficiency on adrenal cortical and liver transaminase activity in rats has been studied. There is no change in the adrenal weight, adrenal cholesterol and ascorbic acid contents in riboflavin deficient animals. Spleens and thymuses decrease slightly. Hyperactivity of adrenal in riboflavin deficiency is indicated from the decrease in the liver catalase activity and lowering of the circulatory lymphocytes.

The ratio of the liver nitrogen to body weight is greater in the case of riboflavin-deficient animals than that in both pair-fed and weight-controlled animals. Aspartic-glutamic (Gl-Asp) and alanine-glutamic (Gl-Al) activity of the liver results in protein anabolism in riboflavin deficiency. Gl-Al transaminase activity is more sensitive. Hepatic levels of all the three enzymes, i.e. Gl-Al and Gl-Asp transaminases and catalase, decrease on protein depletion but considerable increase in the hepatic levels of all the three enzymes is observed on repletion of protein.

The effect of cortisone on transaminase activity has been studied in different tissues. Rats treated with cortisone do not show any significant change in the Gl-Asp transminase activity of the liver, but Gl-Al transaminase considerably increases and becomes more sensitive to cortisone treatment. No change in the Gl-Asp transaminase is observed though there is decrease in Gl-Al transaminase. Riboflavin-deficient rats treated with cortisone show increase in the Gl-Asp and Gl-Al transaminases in the liver. A decrease of Gl-Asp enzyme in the muscle and complete absence of Gl-Al enzyme in the muscle and kidney of rat is observed—S.R. MAITRA, J.J. GHOSH & S.C. JAMDAR, University of Calcutta, Calcutta.

Preservation of Jute—Effectiveness of mixed antiseptic inorganic salts (containing copper, cobalt, lead manganese, chromium, boron and mercury) and resin binders (Flexbond, Lytron S-10 and Darex 56-L) in protecting jute against deterioration when exposed to atmosphere has been studied.

Jute samples containing hydroxides of copper, manganese, cobalt and a resin binder, particularly Lytron S-10, retained nearly 70 per cent of the initial strength after 3 months' exposure to atmosphere and registered 10 times the life of untreated samples in soil incubation tests. Samples treated with copper and

other toxic elements, like cobalt, manganese and boron (as metaborate), showed a retention of 60 per cent of the initial strength after 3 months' exposure. whilst lead chromate used as a standard treatment against sunlight deterioration retained only 36 per cent of the initial strength.

Since the effectiveness of antiseptics against jute-decomposing fungi is considered to be due to their inhibiting action on cellulase, the effect of inorganic salts on cellulase activity is under study--B.N. PAL & B.L. GHOSH, Indian Jute Mills Association Research Institute, Calcutta.

CSIR SECRETARIAT, NEW DELHI—Prof. Humayun Kabir, Minister for Scientific Research & Cultural Affairs and Vice-President, CSIR, hoisted the national flag on Independence Day and addressed the members of the staff

PATENTS & PROCESSES

Patents Filed

83364 : *Manufacture of hexachloroethane*—N.A. Bhat, M. Goswami & M.U. Pai, NCL, Poona.

83365 : *Magnesium copper sulphate nonpolarisable batteries*—P. B. Mathur & N.J. Paul, CECRI, Karaikudi.

83651 : *An improved dross shield*—M.J. Shahani, NML, Jamshedpur.

83652 : *Improvements in or relating to magnesite refractories*—M.R. Rao, A. Dutt, P.C. Sen & H.V.B. Rao, NML, Jamshedpur.

83716 : *Manufacture of nicotine sulphate from tobacco or tobacco wastes*—M. Goswami, G.V. Potnis, V. Ramachandran & M. U. Pai, NCL, Poona.

Patents Accepted

73978 : *An improved rumbler for the extraction of essential oils from tight-skinned citrus fruits*—J. S. Pruthi, M.N.S. Vasudeva Rao, C.M. Parekh & G. Lal, CFTRI, Mysore.

74355 : *Obtaining light coloured oil and soapstock in refining cottonseed oil*—P.L. Narayana Rao, K.T. Acharya & S. H. Zaheer, RRL, Hyderabad.

Process Leased out

The process for improving the storage life of cashew kernels (Indian Pat. Nos. 49838 & 53319) developed by the Central Food Technological Research Institute, Mysore has been leased out for commercial development to two more firms, namely, *Super Industries*, Sasthamcotta, Kerala and *Peirce Leslie & Co, Ltd.*, Kozhikode, Kerala.

Research Papers

Preparation and chemistry of expanding cements—S.K. Chopra & Mohan Rai, CBRI, Roorkee, *Cement Lime Manuf.*, **35** (2) (1962), 17-22.

Differential thermal studies of dye clay complexes—V. S. Ramachandran, K.P. Kacker & N.K. Patwardhan, CBRI, Roorkee. *Transactions of the Eighth International Ceramic Congress*, Copenhagen, (May 1962), 293-99.

An integrated project based on non-coking coals for production of oils, fertilizers, chemicals and pig-iron—L. Lahiri & A.N. Basu, CFRI, Jealgora. *Maharashtra Mineral Industries Corp. 1961, Souvenir*, 117-20.

Investigations into oxygen steel making process employing Indian raw materials and refractories—B.L. Sen, B.R. Nijhawan & A.B. Chatterjea, NML, Jamshedpur, *Trans. Indian Inst. Metals*, **15** (1962), 55-75

Thermistor circuits—S. Krishnan & S. Nagabhushana, NAL, Bangalore—*Electronic Technol.*, **39** (1962), 224.

Guide for straight auger-boring—Subash Chandra & A.K. Deb. CBRI, Roorkee. *Indian Concr. J.* **36** (1962), 225-28.

Fish hydrolysates : Part I-Rate of hydrolysis of fish flesh with papain—D.P. Sen, N.V. Sripathy, N.L. Lahiry, A. Sreenivasan & V. Subrahmanyan, CFTRI, Mysore. *Food Technol., Champaign*, **16** (1962), 138-41.

Fish hydrolysates : Part II-Standardization of digestion conditions for preparation of hydrolysates rich in peptone and proteoses—N.V. Sripathy, D.P. Sen, N.L. Lahiry, A. Sreenivasan & V. Subrahmanyan, CFTRI, Mysore. *Food Technol., Champaign*, **16** (1962), 141-42.

OTHER PUBLICATIONS

Melia, Bull. No. 59, 1962, NBG. Lucknow. The bulletin gives a comprehensive account of botanical characteristics, results of chemical investigations and therepeutic uses of the two *Melia* spp.—*M. Indica* nim and *M. azedarach* (bakayan).

Pollen Grains of Indian Plants: No 2, Bull Nos. 60 & 63, 1962, NBG, Lucknow—Describes the pollen grains of Indian species of the representative genera of *Cochlospermaceae, Moringaceae, Phytolaceae, Portulacaceae Tamaricaceae, Malvaceae and Bombacaceae.*

Ferns of India No. 4: Plagiogyria, Bull. No. 64, 1962, NBG, Lucknow—Describes the distribution of Indian species of these ferns, and keys to their identification.

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CSIR NEWS

VOL. 12 NEW DELHI—SEPT. 10, 1962 : BHADRA 12, 1884 No. 17

DR. HUSAIN ZAHEER TAKES OVER AS D.G.

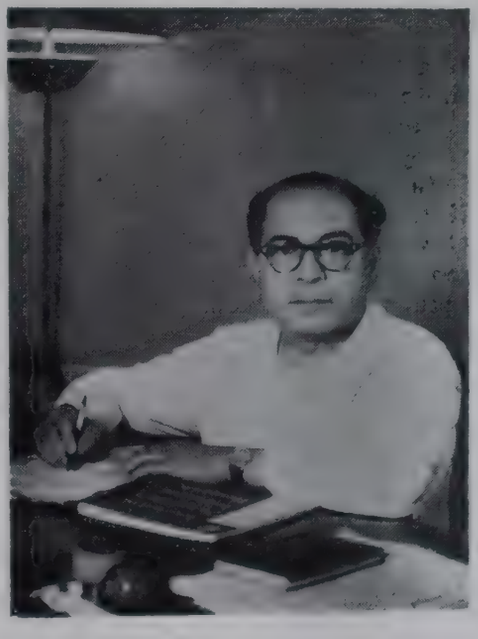
Dr. Syed Husain Zaheer, M.A. (Oxon), Dr. Phil. Nat. (Heidelberg), F.R.I.C., Director of the Regional Research Laboratory, Hyderabad, has been appointed officiating Director-General of the Council of Scientific & Industrial Research *vice* Prof. M.S. Thacker, who has proceeded on three months' leave (w.e.f. 1.8.1962). He took charge of his office on Sept. 1, 1962.

Born on Nov. 7, 1901, Dr. Zaheer was educated at Lucknow, Oxford and Heidelberg.

Throughout his life he has been closely associated with research and teaching. From 1930 to 1946 he was Reader in Organic Chemistry, Lucknow University. In 1946 he was appointed Principal of the Government City College, Hyderabad. Two years later he became Professor of Organic Chemistry in Lucknow University. Since 1948 he has been Director of the Central Laboratories for Scientific & Industrial Research, Hyderabad which were taken over by CSIR in 1956 and constituted as the Regional Research Laboratory, Hyderabad. During the fourteen years of his Directorship, he has been able to build up the Regional Research Laboratory as one of the most important industrial research laboratories of the country. He has gathered a large number of enthusiastic scientific workers in the institution. During his stewardship he succeeded in promoting and developing several pilot plant studies.

Very early in his life he was attracted by the nationalist movement and he was a member of the Indian National Congress from 1935 up to Indian Independence. He represented the University constituency in the Legislative Assembly, U.P. from 1937 to 1944 and was appointed Parliamentary Secretary to the Minister for Education, U.P. during 1937-38.

Dr. Zaheer was President of the Chemistry Section of the Forty-third Indian Science Congress held at Agra in 1956. Next year he participated in the deliberations of the World Federation of Scientific Workers at Helsinki and presided over one of the sessions of the Thirtieth International Congress of Industrial Chemistry. He was a member of the Indian delegation to the Tenth General Session of Unesco at Paris in 1958.



Dr. S. Husain Zaheer

In 1954, Dr. Zaheer undertook a study of post-war German industry as a Senior United Nations Fellow and visited West Germany and Finland in 1955 to study plants and techniques for the utilization of low grade coals at the invitation of the Government of the Federal Republic of Germany.

A great educationist, Dr. Zaheer has been intimately associated with several expert committees connected with primary, secondary and collegiate education in the country. He is a member, Committee of the All India Board of Technical Studies in Chemical Engineeering and Technology; Experts Committee on Biochemistry, University Grants Commission; Faculty of Technology as well as Academic Council, Osmania University and Honorary Professor of Chemistry, Aligarh Muslim University.

Dr. Zaheer has been keenly interested in many important industrial development projects in the country. He is a member, Panel of Scientists set up by the Planning Commission and of the Sub-committee for the Formulation of Schemes on Essential Oils in the Third Five Year Plan; the Experts Committee for Synthetic Oil Projects; the Committee to advise on matters relating to Oil Exploration, Production, Refining, etc; the Development Council for Scheduled Industry engaged in the Manufacture and Production of Heavy Chemicals and for Oil-based Industries.

He has been very largely associated with preparation of project reports and blue prints for starting many new industries in the country both in the private and public sector. He has been a member of the Board of Directors of many industrial enterprises. He is a member of the Boards of Directors, Andhra Pradesh Industrial Development Corporation Ltd.; Jammu & Kashmir Mineral Products Corporation and Fertilizer Corporation of India; Standing Advisory Committee for Large Scale Industries for Andhra Pradesh; Mineral Committee, Government of Assam; Chairman, Technical Sub-Committee and member, Andhra Pradesh Fertilizer Projects; and Chairman or member of various committees of the Indian Standards Institution.

Dr. Zaheer is a member or President of numerous learned societies. He was President, Association of the Scientific Workers of India (1957-58); Honorary Treasurer, Indian Society for the History of Science; member, Executive Committee, World Federation of Scientific Workers; associate member, Scientific Sub-Committee, Indian National Commission of Unesco; member, Councils of the Indian Chemical Society, Indian Ceramic Society and Institution of Chemists (India).

Dr. Zaheer is the author of several research papers in organic chemistry, coal chemistry & technology, oils & fats, surface coatings, heavy chemicals & fertilizers. He has also to his credit more than sixty patents.

He was awarded the H.K. Sen Bronze Medal in 1954. He was also the recipient of K.G. Naik Gold Medal of the Maharaja Sayaji Rao University of Baroda in 1957 for having made 'contributions to the published research (which) have found or are most likely to find application in developing Indian industries during the period of five years prior to the award of the medal'.

Shri B.L. Sen

Shri B.L. Sen has been appointed, on promotion, Assistant Director, NML, Jamshedpur (w.e.f. June, 29, 1962.)

Born in 1922 in Sonarang, Vikrampur, Shri Sen was educated at Calcutta and Dacca Universities. After obtaining his M.Sc. Degree in applied chemistry in 1943, he started his career as a lecturer. Subsequently, he worked as Research Technologist and Chemist in industrial undertakings and in various capacities as Fuel Technologist, Chief Chemist and Assistant Manager in coking and by-products recovery plants. In 1948, Shri Sen joined CFRI, Jealgora and changed over to NML, Jamshedpur after about a year. In 1955 he proceeded to U.K. for higher technical training in coke ovens, blast furnaces and steel melting practices. He also made an extensive study of alternative continental practices on coke, iron and steel making. Again in 1959 he visited Germany to study the operational details of Low Shaft Furnace with Demag Humboldt Niederschactofen, G.m.b.H.

Shri Sen has published several papers on oxygen-steel making, low shaft furnace iron making and fuel technology.

B R I E F S

CSIR takes over Visvesvaraya Museum

In pursuance of the decision taken by the Governing Body of CSIR at their meeting held in October 1961, the Visvesvaraya Industrial & Technological Museum at Bangalore has been recently taken over by the Council. Inaugurated in July 1962 by the Prime Minister Shri Jawaharlal Nehru, the Museum was set up by the Visvesvaraya Industrial Museum Society to commemorate the services of the late Dr. M. Visvesvaraya in the field of industry and technology.

A 10-man Planning Committee with the Director-General, Scientific and Industrial Research, as Chairman has been constituted by the Council for the planning and development of the Museum. The following are the members of the Committee: Director, Indian Institute of Science, Bangalore; Director, Indian Institute of Technology, Madras; Director of Industries to the Government of Kerala; a representative of the Government of Mysore; three representatives of the Visvesvaraya Industrial Museum Society; Shri K. Sreenivasan, ex-Chief Secretary to the Government of Mysore; and Shri A. Bose, Officer-in-charge of Birla Industrial & Technological Museum, Calcutta.

Watumull Award for Dr. Bhargava

Dr. P. M. Bhargava, Senior Scientific Officer in charge of the Biochemistry Section, Regional Research Laboratory, Hyderabad has been selected for the Watumull Memorial Award for 1962.

The award, instituted in 1960 in memory of late G.J. Watumull by the Watumull Foundation will be conferred on him at a ceremony to be held in New Delhi early in 1963.

Plant Embryology

The proceedings of the Symposium on Plant Embryology held at the University of Delhi under the auspices of the Biological Research Committee, CSIR, during Nov. 11—14, 1960 have been published.

The 274-page publication includes 29 papers covering various aspects of embryology—descriptive, developmental, phytogenetic. comparative and experimental; special modes of reproduction have also been included.

An up-to-date compendium of research in plant embryology in India, the publication is useful for students, teachers and research workers in the field.

Copies of the publication (price Rs. 20) are available from the Under Secretary, Publications Directorate, CSIR, New Delhi.

Bulletin of RRL, Jammu

The first number of the biannual publication entitled *Bulletin of Regional Research Laboratory, Jammu* has been brought out.

The bulletin is designed to disseminate information, in simple non-technical language, on cultivation of Indian medicinal, aromatic and poisonous plants and research work carried out on them.

* * *

The following research schemes have been transferred from Banaras Hindu University to Poona University consequent on Dr. Arnikar being appointed as Professor & Head of the Department of Chemistry, Poona University, Poona: (i) Absorption of ions in micro and tracer concentrations; (ii) Comparative study of the wall catalysed and homogeneous arts of a reaction under electric discharge; and (iii) Electromigration of labelled ions in aqueous media.

Sports Goods Leathers
Demonstration at CLRI

Manufacture of hockey and cricket ball leathers by a process developed by the Central Leather Research Institute, Madras will be demonstrated to tanners at the Institute from Sep. 21 to Oct. 12, 1962.

RESEARCH IN PROGRESS

National Laboratories

NML, JAMSHEDPUR

Refractory Clays from Madras State — The physical and chemical characteristics as well as high temperature behaviour of samples of clays from Sivaganga (Ramnad Dt.), Tindivanam, Panruti and Neyveli (South Arcot Dt.), all in Madras State, have been studied in detail.

The clays which are kaolinitic contain quartz as predominant impurity along with ferruginous impurities. On firing, the clays assume a buff colour and the fired products have high refractoriness and refractoriness-under-load. But they have poor bonding strength. The clays are very promising as raw materials for manufacture of fire clay refractories and one of them may prove good for making semi-silica refractories also as it has a high silica content.

CFTRI, MYSORE

Degradation of Coconut Cake Cellulose—The possibility of utilizing coconut cake after reduction of its fibre content as a potential source of inexpensive high quality protein is being investigated. The use of fungal enzymes for reduction of the fibre has been attempted. Cellulose, an enzyme prepared from the culture filtrates of *Myrothecium verrucaria*, has been found effective (c. 40 per cent) in degradation of cellulose in the cake. A similar fungal enzyme has also been prepared from the culture filtrate of *Stachybotrys atra*.

RRL, HYDERABAD

Liquid Fuels from Low-Temperature Coal Tar Oils—On the basis of laboratory and bench scale experiments on processing of low temperature coal tar oils, a pilot plant (capacity, 0.5 litre/hr) for continuous hydro-refining of coal tar oil has been installed recently and commissioned. Trial runs with low temperature coal tar fraction (b.p., 250-300°C.) at 425°C. and 50 kg./sq. cm. pressure gave a product completely free from oxygen and sulphur compounds.

A similar pilot plant for hydro-refining of benzole and a semi-technical plant of 5 litre/hr capacity, suitable for both coal tar oil and benzole, have also been erected.

RRL, JAMMU

Cultivation of Chamomile—German chamomile (*Matricaria chamomilla*) has been successfully introduced and cultivated in the Experimental Research Farm. Use of nitrogenous fertilisers has been found to increase the yield of flowers. An yield of 0.7—1.0 per cent of the essential oil has been obtained by distillation of the flowers. From one acre, 1600 kg. of fresh flowers yielding 4 kg. of the oil have been obtained.

The oil is in good demand in the West for use in pharmaceutical preparations and as an essence and hence the export possibilities of the oil are very bright.

Sponsored Research

Effect of Ionising Radiations on Micro-organisms—In order to understand the mechanism of action of ionising radiation on cells, deoxyribonucleic acid (DNA), the genetic material of cells, has been extracted from cells of *Escherichia coli* and subjected to ultra-centrifugation, ultraviolet absorption, tracer and electron microscopic techniques of analysis.

Ultracentrifugal analysis indicated that the change produced by irradiation was too small for detection. Ultraviolet absorption studies revealed definite evidence of denaturation of DNA. It was concluded from tracer studies that radiation seriously interfered with the rate of formation of nucleic acid inside the cell and that the vulnerability of the colony forming ability of the cells was four times their ability to synthesise nucleic acid.

Electron microscopic examination of the single DNA fibres varying in length from 10 to 40μ isolated from the irradiated cells revealed that the frequency of occurrence of long molecules was much reduced when compared to unirradiated cells.

These investigations have shown that radiation can affect the cell either directly by ionization within the sensitive site or indirectly by the production of ions in the medium surrounding the sensitive sites, these ions subsequently inactivating the sensitive site by interacting with it. Appropriate theories have been developed by which it is possible to separate and analyse the two effects. The theoretical predictions have been compared with the experimental findings — S. B. BHATTACHARJEE, P.K. GANGULI & N.N. DAS GUPTA, Saha Institute of Nuclear Physics, Calcutta.

Nature and Kinetics Reactions and Physico-chemical Structure of various Phenolics — Tri - and tetramethyl phenols, phenol alcohols and dehydroxy phenyl methane compounds derived from them were synthesised.

It was observed that all the *ortho* phenol alcohols synthesised and those prepared from representative phenols like 3,5-dimethylphenol, *p*-cresol, etc. formed coloured complexes with acid ferric chloride. These complexes were more stable (50%) in dioxane solutions than in water. A new and convenient colorimetric method was developed and standardised for the estimation of these phenols based on their colour formation with ferric chloride.

The rates of reaction of these phenol alcohols with formaldehyde (concentration, $N/5$ to $N/20$) in 50 per cent dioxane-water at temperature ranges of 50-90°C. using sodium, calcium, barium and lithium hydroxides (concentration, 0.005 to 0.02 N) were studied. Similar reactions between monomethylols and formaldehyde in 50 per cent dioxane-water were studied using hydrochloric, sulphuric and nitric acids (concentration, 0.006 to 0.02 N) at temperature ranges 50-90°C.

The following conclusions have been reached : (i) All the reactions obey second order rate law; (ii) all the phenols have higher reactivity with formaldehyde than otherwise probably due to the *meta* methyl groups present in all of them; (iii) *para* position in the phenol nucleus is nearly twice as reactive as the *ortho* position; introduction of a methyl group in the phenol nucleus enhances the reactivity of the phenol, while introduction of methylol group brings about decreased activity of the phenol—M. SANTAPPA & H. DAKSHINAMURTHY Department of Chemistry, Madras University, Madras.

MEETING AND SYMPOSIUM

A meeting of the Executive Council of the National Chemical Laboratory, Poona will be held in the Board Room of the Laboratory on Sept. 17, 1962.

Lattice Defects and Dynamics

A six-day symposium on Lattice Defects and Lattice Dynamics will be held at the National Physical Laboratory, New Delhi commencing from October 8, 1962.

Jointly organized by the University Grants Commission and the National Physical Laboratory, the Symposium will be inaugurated by Prof. Humayun Kabir, Union Minister for Scientific Research and Cultural Affairs.

The symposium will provide an opportunity to research workers in universities, research laboratories and other institutions to meet together and discuss recent work and current problems and exchange ideas in the field of solid state physics. Original papers on recent experimental or theoretical work as well as review articles having intimate bearing on these subjects will be presented and discussed. Lectures on these subjects have also been arranged.

Intending participants may send synopses of their papers to Dr. S. C. Jain, Assistant Director, Solid State Physics Division, National Physical Laboratory, New Delhi-12 by Sept. 15, 1962.

PERSONAL

Appointments

SHRI K.N. GUPTA—Senior Scientific Officer : Grade I, NML, Jamshedpur (July 24, 1962).

SHRI C.G. GUPTE & DR. S. KRISHNAN—Senior Scientific Officers : Grade I, NAL, Bangalore (Aug. 4 & 16, 1962).

SARVASHRI B. SATYANARAYANA, V. KALYANARAMAN, K.N. RAJU & K. VENKATACHALAM—Senior Scientific Officers : Grade II, NAL, Bangalore (Aug. 4, 1962).

SHRI G.H. VARADARAJULU—Senior Scientific Officer : Grade II, CRRI, New Delhi (Aug. 4, 1962).

SHRI S.S. SACHDEVA – Senior Scientific Officer : Grade II, IIP, New Delhi (Aug. 7, 1962).

SHRI P.S. ARVINDAKSHAN-Junior Scientific Officer; NAL, Bangalore (Aug. 4, 1962).

The following officers have been appointed on promotion to post mentioned against their names.

SHRI JATINDER MOHAN—Senior Scientific Officer : Grade I, NML, Jamshedpur (July 3, 1962).

SHRI M. KURIEN—Senior Scientific Officer : Grade I, IIP, New Delhi (Aug. 7, 1962).

SHRI K.M.L. BHATANAGAR—Senior Scientific Officer : Grade II, IIP, New Delhi (Aug. 7, 1962).

SHRI KRISHAN KANT — Senior Technical Officer : Grade II, National Register Unit, CSIR, New Delhi (Aug. 27, 1962).

SARVASHRI R. SANTOKH SINGH & S L. SEN—Junior Scientific Officers, NML, Jamshedpur (Aug. 1 & Aug. 30, 1962 respectively).

* * *

DR. N.N. DE, Assistant Director, CDRI, Lucknow, retired on July 31, 1962.

SHRI M.L. GUPTA, Senior Scientific Officer : Grade I, NML, Jamshedpur resigned with effect from July 18, 1962.

* * *

DR. ATMA RAM has been nominated representative of CSIR on the Natural Science Sub-Commission of the Indian National Commission for Cooperation with Unesco.

DR. J.W. WHITAKER, Director and SHRI M. KURIEN, Senior Scientific Officer, IIP, Dehra Dun, have been nominated principal and alternate members of the Chemical Hazards Sectional Committee of the Indian Standards Institution.

LT. GEN. H. WILLIAMS, Director, CBRI, Roorkee has been nominated Chairman of the Fire Safety Sectional Committee of the Indian Standards Institution.

DR. Y. NAYUDAMMA, Director, CLRI, Madras has been nominated member of the Board of Governors of the Indian Institute of Technology, Madras.

DR. W.M. VAIDYA, Deputy Director, NPL, New Delhi has been nominated member of Signals and Protective Glasses Sub-Committee of the Indian Standards Institution.

DR. RAJENDRA KUMAR, Assistant Director, NML, Jamshedpur has been nominated member of the Steel Forgings Sectional Committee of the Indian Standards Institution.

DR. M.L. KHANNA, Senior Scientific Officer, NPL, New Delhi has been nominated member of the Panel of the Internal Combustion Engine Lubricating Oils of the Indian Standards Institution.

PATENTS & PROCESSES

Patents Field

83743 : *New heterocyclic Compounds of pharmacological interest*—Y. S. Sadanandam, P. B. Sattur, G.S. Sidhu & S. H. Zaheer, RRL, Hyderabad.

83744 : *N-haloacyl-benzylamine derivatives*—Y.S. Sadanandam, P.B. Sattur, G.S. Sidhu & S.H. Zaheer, RRL, Hyderabad.

83779 : *Novel heterocyclic amides and preparation thereof*—G. Thyagarajan, G.S. Sidhu & S.H. Zaheer, RRL, Hyderabad.

Patents Accepted

74451 : *Preparation of covering materials from anacardic materials*—D. Raghunath, N.P. Suryanarayana & N.R. Krishnaswamy, NCL, Poona.

74680 : *Improvements in or relating to electrolytic derusting on corroded metal parts*—K. S. Rajagopalan, N. Subrahmanyan & Y.V.P.R. Row, CECRI, Karaikudi.

906929 ; *Improvements in or relating to a vehicle lamp fitting for vehicles*—C.R. Gupta, NPL, New Delhi.

Process Leased Out

A process for producing mica insulating bricks (Pat No. 48667) developed by the Central Glass & Ceramic Research Institute, Calcutta has been leased out to one more firm, namely, *Andhra Pradesh Mining Corporation Ltd.*, Hyderabad.

Research Papers

Mechanism of dielectric absorption in the microwave region—S. Dasgupta & Gyan Mohan, NPL, New Delhi. *Proc. roy. Soc.*, **267 A** (1962), 424-32.

The emitter of hydrocarbon flame bands—W. M. Vaidya, NPL, New Delhi. *Eighth Symposium (International) on Combustion*, Baltimore, 1962.

The Lorenz parameter in dilute silver-manganese alloys at liquid helium temperatures—M.S.R. Chari, NPL, New Delhi. *Proc. phys. Soc.*, **78** (1961), 1361-71.

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MEETINGS & CONFERENCES

A meeting of the Biological Research Committee, CSIR will be held in the Conference Room of CSIR Secretariat, New Delhi on Sept. 29, 1962 at 10 a.m. Prof. P. Maheshwari will preside.

A meeting of the Executive Council of the Central Drug Research Institute, Lucknow will be held in in the Conference Room of CSIR Secretariat, New Delhi on Oct. 5, 1962. Dr. Jivraj N. Mehta, Chief Minister of Gujarat, will preside.

Research and Building Industry

The impact of research on building industry will be discussed at a three-day Conference commencing from November 1, 1962 organised by the Central Building Research Institute at Roorkee.

Leading engineers, research workers and representatives of building industry are expected to attend the Conference.

Papers on subjects relating to cement concrete, prestressed concrete, shell structures, foundation problems, plastics in building industry, development and introduction of lightweight aggregates, clay products, prefabrication of buildings, works study in building industries, factory noise and illumination, and standardization of building components for mass housing will be discussed.

Advanced Methods of Crystallography

A Winter School on Advanced Methods of Crystallography sponsored jointly by CSIR and the University Grants Commission will be held in Madras from Jan. 22 to Jan. 27, 1963.

About 30 lectures on various topics relating to crystallography and imperfections in crystals will be delivered by distinguished scientists.

Those who wish to attend the Winter School may contact the Secretary, C/o Department of Physics, University of Madras, Madras-25.

PERSONAL

Appointments

SHRI K. V. SRINATH—Liaison Officer, VITM, Bangalore (Sept. 10, 1962).

SHRI G. SUBRAMANYAM—Civil Engineer, CSIR, New Delhi (Sept. 5, 1962).

SHRI L.V. KANAN—Junior Scientific Officer, CDRI, Lucknow (Aug. 17, 1962).

SHRI K.K. CHOPRA—Section Officer, CSIR (in leave vacancy) (Sept. 15, 1962).

The following officers have been appointed on promotion to posts mentioned against their names.

DR C.G. BALACHANDRAN, Junior Scientific Officer, CBRI, Roorkee—Senior Scientific Officer : Grade II, CBRI, Roorkee (Sept. 10, 1962).

SHRI S.L. SEN, Senior Scientific Assistant, NML, Jamshedpur—Junior Scientific Officer, NML, Jamshedpur (Aug. 30, 1962).

SHRI P. M. ABDUL RAHIMAN, Senior Scientific Assistant, CBRI, Roorkee—Civil Engineer, CSIR, New Delhi (Aug, 30, 1962).

SARVASHRI C.L. GUPTA & P.R. RAJAGOPALAN, Senior Scientific Assistants, CBRI, Roorkee—Junior Scientific Officers, CBRI, Roorkee (Sept. 10, 1962).

* * *

SHRI K.D. BANERJEE, previously Administrative Officer, NML, Jamhsedpur assumed charge as Administrative Officer, CRRI, New Delhi on July 30, 1962.

(Contd. on page 2, col. 3)

Dr. S. Husain Zaheer

On September 1, 1962 Dr. S. Husain Zaheer, Director-General, addressed the officers of the Central Secretariat of the CSIR. Shri A.J. Kidwai, Secretary, CSIR in welcoming him assured him of the whole-hearted cooperation of all the officers. Dr. Zaheer in his informal talk referred appreciatively to his two illustrious predecessors, Dr. S.S. Bhatnagar who helped to build the organisation and Prof. M.S. Thacker who stabilised it and expanded it further. He said that he would strive his best to fulfill the challenging task before him and hoped that in this task, he would have the cooperation of one and all.

On September 10, Dr. Zaheer addressed the members of the staff of CSIR Secretariat. He visited the Central Road Research Institute, New Delhi and National Physical Laboratory, New Delhi on Sept. 11 and Sept. 12, 1962 respectively and acquainted himself with the work being carried on in these institutions. At the Central Road Research Institute, he was welcomed and taken round the various divisions by Prof. S.R. Mehra, Director and at the National Physical Laboratory by Shri A. K. Mustafy, Administrative Officer.

Accompanied by Shri A. Bharadwaj, Architect, CSIR, Dr. Zaheer inspected on Sept. 12, 1962 the new building, under construction, for the Publications & Information Directorate and Insdoc. The next day he went round all the sections of the Publications & Information Directorate. The work of the various sections in the Directorate was explained to him by the Chief Editor, Shri B.N. Sastri. Addressing the officers, Dr. Zaheer pointed out that the workers in the Publications Directorate were doing very useful work. In his opinion, publication was the heart and soul of scientific research. He assured them of his help and support in their task.

B R I E F S

Geophysics Research Board

The functions of the Central Board of Geophysics have been entrusted to the Geophysics Research Board recently constituted by CSIR under the Chairmanship of Dr. K.R. Ramanathan, Director, Physical Research Laboratory, Ahmedabad. The work of the Geophysical Research Wing of the Board will now be carried out at the proposed National Geophysical Research Institute (NGRI) to be set up at Hyderabad. The Oceanographic Research Wing of the Board will continue to function at the Naval Physical Laboratory, Cochin.

Cancer Research at CDRI

The National Institutes of Health (NIH), U.S.A. will collaborate with the Central Drug Research Institute, Lucknow for a period of three years, on a project for the development of potential anti-cancer agents. An agreement to this effect has been entered into between the U. S. Government and the Council of Scientific and Industrial Research. Under the agreement, CDRI will also receive financial assistance to the tune of Rs. 2.79 lakhs for carrying out research.

Aqueous and alcoholic extracts of drug plants, which are reported to possess curative properties, will be prepared and sent to the Cancer Chemotherapy Service Centre, NIH for testing. Extracts showing activity against cancer will be fractionated at CDRI to isolate the active principles. The NIH will provide guidance in the fractionation by suitable bioassay techniques such as mouse tumours, tissue culture, egg-cultivated tumour and other techniques. Pre-clinical pharmacology will follow, either at CDRI or at other laboratories suggested by NIH.

Scientists' Pool

The strength of the Scientists' Pool constituted for the temporary placement of qualified scientists and technologists has been further expanded to 500.

The strength, which was 100 at the time of the constitution of the Pool, was increased to 200 in 1960 and 300 in January 1962.

The pay and emoluments of Pool Officers have been revised to bring them in line with the revised pay scales recommended by the Second Pay Commission. Selection to the Pool are made more or less by open continuous recruitment so as to reduce the period of waiting to a minimum.

* * *

One thousand and sixty six scientists were selected for appointment to the Scientists' Pool up to August 16, 1962. Disclosing this, Prof. Humayun Kabir, Union Minister for Scientific Research & Cultural Affairs, informed the Rajya Sabha that 382 scientists took up assignments in India as Pool Officers, of whom 123 have since secured regular employment in India. Another 249 had secured appointments in India before joining the Pool.

Prof. Kabir added that seven persons resigned from the Pool and went abroad for further training, on securing positions and for private reasons (Aug. 27, 1962).

Dr. Subrahmanyan to receive Gold Medal

Dr. V. Subrahmanyan, Director, CFTRI, Mysore has been chosen for the award of K.G. Naik Gold Medal by the Maharaja Sayajirao University of Baroda.

The award is made to a research scientist in chemistry whose contributions have found application in Indian industry.

Dr. Subrahmanyan will receive the medal at the annual convocation of the University on Oct. 20, 1962.

CDRI Annual Report

The Annual Report for 1961-62 of the Central Drug Research Institute, Lucknow has been published.

The 128-page report presents the work carried out by the Institute under the following headings: Botany and Pharmacognosy, Medicinal Chemistry, Biochemistry, Biophysics, Pharmacology, Chemotherapy, Endocrinology, Microbiology, Parasitology, Experimental Medicine, Antibiotics, Analytical Wing, Biometry & Statistics, and Information. Papers published by the research staff of the Institute have been included.

PERSONAL

(Contd. from p. 1, col. 2)

DR. G. R. CHOUDHARY, Senior Scientific Officer, CDRI, Lucknow has been relieved of his duties with effect from Aug. 9, 1962.

SHRI R. C. SRIVASTAVA, Junior Scientific Officer, Rain & Cloud Physics Research Unit, NPL, New Delhi resigned with effect from Sept. 15, 1962.

* * *

DR. A. LAHIRI, Director & SHRI A.K. MOITRA, Assistant Director, CFRI, Jealgora have been nominated principal and alternate members of the Solid Mineral Fuels Sectional Committee of the Indian Standards Institution.

DR. M.S. KRISHNAN, Director, NGRI, Hyderabad has been nominated member of the Other Minerals Group of Raw Materials Sub-Committee constituted by the Union Ministry of Steel & Heavy Industries.

SHRI R.S. MEHTA, Director PROF. M.V. BOPARDIKAR, Assistant Director, CPHERI, Nagpur have been nominated principal and alternate members of the Public Health Engineering Plants & Equipment Sectional Committee of the Indian Standards Institution.

PROF. H. WRIGHT BAKER, Acting Director and Chief Unesco Adviser & SHRI R.N. SINGHAL, Senior Scientific Officer, CMERI, Durgapur have been nominated principal and alternate members of the Machine Tools Sectional Committee of the Indian Standards Institution.

DR. G.N. BADAMI, Assistant Director, CMRS, Dhanbad has been nominated member of the Panel for Installation & Maintenance of Flame-proof and Intrinsically Safe Electrical Equipment of the Indian Standards Institution.

DR. S.C. DATTA, Senior Scientific Officer, CLRI, Madras has been nominated member of the working Group to Study the Utilization of Slaughter House Wastes, constituted by the Planning Commission.

DR. S. MUKERJEE, Senior Scientific Officer, IIBEM, Calcutta has been nominated member of the Cholera Sub-Committee of the Indian Council of Medical Research.

RESEARCH IN PROGRESS

National Laboratories

NML, JAMSHEDPUR

Diamond Recovery from Panna Ores—Suitable ore dressing techniques for the recovery of diamonds from diamondiferous tuff and gravel samples from Majhagawan and Ramkheria mines in Panna areas (Madhya Pradesh) have been developed at the instance of the National Mineral Development Corporation (NMDC). Detailed flow sheets for setting up of treatment plants for efficient recovery of diamond have been prepared and supplied to NMDC.

CLRI, MADRAS

Amino Acids of Marine Mammal Collagen—The amino acids present in skin collagen of marine mammal Dugong have been determined and compared with those of buff hide collagen. The hydroxyproline content of the former is 11.5 per cent while that of the latter is 13.2 per cent. In spite of the lower hydroxyproline content, the shrinkage of tanned Dugong skin is a little higher than that of buff hide. The hydroxyamino acids, serine and threonine, are present in higher concentration in buff hide collagen, but the concentration of tyrosine is almost the same in both.

NBG, LUCKNOW

Dwarfing of Trees and Shrubs—A number of ornamental and shady trees and shrubs have been experimented upon with a view to dwarfing their size and inducing early-flowering materials.

The trees which have been dwarfed and which flowered early are: *Solanum macranthum*, *Terminalia mulleri*, *Ficus retusa* and *Bauhinia acuminata* Twelve other trees are under study.

The shrubs which responded to the treatment and flowered in a dwarf state are: *Bougainvillaea*, *Chrysanthemums*, *Hibiscus* varieties, *Jasminum* varieties, *Nyctanthes arbortristis*, *Polygonum chinense*, *Punica granatum* and some roses.

Identification of Pteridophytes—A collection of over 1000 air-borne spore samples of Indian Pteridophytes has been raised in the Garden to help specific identification of fossil spores and stray air-borne spores. Illustrated descriptions of spores, with a key to specific identification, have been prepared. Sample slides are available for comparative study.

CSMCRI, BHAVNAGAR

Up-grading of Gypsum—Low-grade gypsum (containing $CaSO_4.2H_2O$, 88; and SiO_2, 7 per cent) from Jammu has been up-graded by froth-flotation using sodium oleate as frother and collector. The beneficiated product contains 98 per cent calcium sulphate ($CaSO_4.2H_2O$) and 1.8 per cent sand (SiO_2) and is recovered in 80 per cent yield. The same method has been found to be satisfactory for up-grading marine gypsum.

IIBEM, CALCUTTA

Assay of Properdin—A simple reproducible method for estimating properdin—an euglobulin fraction of human blood serum responsible for bactericidal, antiviral and heamolytic properties—in rat sera has been developed using inulin, an insoluble polysaccharide possessing Zymosan-like action, guinea-pig complement and sensitized sheep erythrocytes. The method is also suitable for the assay of properdin in human sera.

Sponsored Research

Liquid Crystals—Formation and properties of nematogenic (thread-like) liquid crystals have been studied.

As *p,p*-substituted Schiff's base compounds are expected to form nematogenic liquid crystals, twenty-one Schiff's base compounds were prepared by the interaction of *p*-fluoro, chloro-, bromo-, methyl-, methoxy-, ethoxy-propoxy- and butoxy-substituted anilines with *p*-methoxy-, ethoxy-, acetoxy-, propionoxy-, butyroxy-substituted benzaldehydes. The tendency of these compounds to form liquid crystalls increases with the increase in the polarity of the end groups in them and the length of molecule. Amongst the halogen substituted derivatives of some Schiff's base compounds the chloro-substituted derivatives exhibit mesomorphism (either, monotropy or enantiotropy), while the corresponding fluoro-substituted derivatives are non-liquid crystalline—J.S. Dave & G. P. Parikh, M. S. University, Baroda.

Bollworm of Cotton—The factors governing oviposition and feeding behaviour of the spotted bollworm of cotton (*Earias fabia*) have been investigated.

Tests carried out to compare the efficiency of various diets for the growth and fecundity of the insect showed that fresh okra pods are the best for supporting good growth of the larvae and sucrose solution alone is sufficient to stimulate egg-production in adult moth. A comparison of the number of eggs laid on various substrates by adult female moths reveal that it exercises discrimination for the purpose of oviposition. Cotton boll, leaf and flower are equally effective in stimulating oviposition but the stem is less suitable in this respect.

A comparative study of the distribution and intensity of feeding response of the larvae on different substrates show that their relative preferences for orientation do not entirely correspond with their feeding preferences. The insect prefers leaves and flowers to bolls and stems for orientation. On the other hand, bolls have a much greater capacity to stimulate ingestion than any other part of the cotton plant—K.N. Saxena & R.C. Mehta, University of Delhi, Delhi.

Research Papers

Flavonoids of *Madhuca butyracea* nut-shell—Y.C. Awasthi & C.R. Mitra, NBG, Lucknow. *J. org. Chem.*, **27** (1962), 26-36.

Constituents of *Samadera indica* nuts—C.R. Mitra & H.S. Garg, NBG, Lucknow. *Naturwissenchaften*, **49** (1962), 327-28.

Pollen morphology with reference to the geographical distribution of *Argemone mexicana*—P.K.K. Nair & M. Sharma, NBG, Lucknow. *Lloydia*, **25** (1962), 123-29.

Gametophytes of some species of Blechnum—B.K. Nayar, NBG, Lucknow. *J. Indian bot. Soc.*, **41** (1962), 33-44.

Morphology of the spores and prothalli of some species of the Polypodiaceae—B.K. Nayar, NBG, Lucknow, *Bot. Gaz.*, **123** (1962), 223-32.

Dr. Rajendra Kumar

Dr. Rajendra Kumar has been appointed Assistant Director, NML, Jamshedpur (w.e.f. June 30, 1962).

Born in 1929 at Lucknow, Dr. Kumar obtained his B.Sc. degree in Metallurgical Engineering from the Banaras Hindu University in 1950. After graduation he worked at a steel works in Calcutta for some time and subsequently joined the Central Fuel Research Institute, Jealgora where he worked for about two years. In 1953 he proceeded to U.K. for higher studies and obtained his M.Met. and Ph. D. degrees from the University of Sheffield. He was awarded a bursary of the British Iron and Steel Research Association for his doctorate research. His work on the effect of hydrogen on the martensitic transformation won for him the BRUNTON medal and premium.

On his return to India, Dr. Kumar took up teaching assignments first at the Indian Institute of Technology, Kharagpur and later at the Banaras Hindu University. He has been actively associated with the planning of metallurgical education and was a member of the Board of Studies of the Banaras Hindu University (1959—1960). He is a member of the Ad-hoc Board of Studies of the University of Ranchi.

Dr. Kumar's work relates mainly to the thermal properties of blast furnace raw materials, constitution of liquid alloys, hydrogen in steel, tranformation characteristics and heat content of liquid metals. He has published several research papers in Indian and foreign periodicals.

Dr. S.N. Pradhan

Dr. S.N. Pradhan has been appointed Assistant Director, CDRI, Lucknow (w.e.f. Aug. 16, 1962).

Dr. Pradhan (*b.* April 3, 1919) obtained his B.Sc. and M.B.B.S. degrees from Calcutta University, D.T.M. from School of Tropical Medicine, Calcutta and Ph. D. degree from George Washington University, Washington. He has worked in different capacities in Medical College hospitals, the School of Tropical Medicine, Calcutta, CDRI, Lucknow and National Institutes of Health, Maryland, U.S.A. He has wide experience in different fields of pharmacology including antihistamines, neuropharmacology and cancer chemotherapy and has 40 publications to his credit.

Dr. Pradhan is a Fellow of the American Association for the Advancement of Science and member of the American Society for Pharmacology & Experimental Therapeutics; American Association for Cancer Research; Society for Experimental Biology and Medicine; New York Academy of Sciences; and Society of Sigma XI.

PATENTS & PROCESSES

Patents Filed

83827: *Novel N-haloacyl- 1, 2, 3, 4-tetrahydroquinolines and preparation thereof*—G. Thyagarajan, G.S. Sidhu & S.H. Zaheer, RRL, Hyderabad.

83874: *A process for the treatment and utilization of fish body oil*—M.R. Verma, V.D. Puri & J. Rai, NPL, New Delhi.

83968: *A method for reconditioning coated magnesium powders*—V.S. Sampath, G. Basak & P.P. Bhatnagar, NML, Jamshedpur

Patents Accepted

74356: *Preparation of insoluble reaction products of polystyrene for use as cation-exchange materials*—K.P. Govindan & N.R. Krishnaswamy, NCL, Poona.

74452: *Improvements in or relating to the production of tolylene diisocyanates*—S.R. Goel & R.T. Thampy, Sri Ram Institute for Industrial Research, Delhi.

75699: *Improvements in or relating to the conversion of total bile acids into lithocholic acid*—P.N. Rao, NCL, Poona.

Patents Sealed

71063: *Production of bacterial protease by submerged culture*—I. Babbar, V.K. Powar & V. Jagannathan, NCL, Poona.

71284: *Process for electrolytic engraving or etching on metals or alloys thereof*—K.C. Srivastava & O.P. Kulsreshta, NPL, New Delhi.

71322: *A process for the preparation of disinfectant grade creosote oil from primary tars*—D.P. Agrawal, M.G. Krishna & S.H. Zaheer, RRL, Hyderabad.

72425: *A direct process for preparing the chlorides of barium and strontium from their sulphate minerals*—S.H. Iqbal, J. Lobo & J. Gupta, NCL, Poona.

Announcing the publication of :

PLANT EMBRYOLOGY : A SYMPOSIUM

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Rafi Marg, New Delhi—1

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R.N. 4212 5

CSIR NEWS

VOL. 12 NEW DELHI—OCT. 8, 1962 : ASVINA 16, 1884 No. 19

CLRI Demonstration

Manufacture of shrunken grain, split upholstery and screen printed leathers by a process developed by the Central Leather Research Institute (CLRI), Madras will be demonstrated at the Institute from October 15 to November 7, 1962.

Representatives of leather industry and tanneries who wish to attend the demonstration may contact the Director, CLRI, Madras.

Indian Ocean Expedition

The first scientific cruise of the frigate INS KISTNA as part of the Indian Programme of International Indian Ocean Expedition (*CSIR News*, Vol. 12, No. 12, p. 2) will be inaugurated at Bombay on October 9, 1962 by Prof. Humayun Kabir, Union Minister for Scientific Research & Cultural Affairs. He will also formally declare open the Research Laboratory of the frigate.

About 20 scientists will participate in the cruise headed by Shri Shivaram Sastri, Senior Scientific Officer, Department of Atomic Energy, to study the various disciplines of oceanography including marine biology, marine meteorology, physical and chemical oceanography, marine geology and geophysics. The cruise will last about 15 to 20 days and cover the Arabian sea.

The frigate, commanded by Lt. Cdr. Ballal, has been specially equipped with oceanographic research instruments. It has returned to Bombay on October 6, 1962 after completing a 13-day training cruise.

International Quiet Sun Year

The Indian National Committee for IGY has been renamed as the Indian National Committee for International Quiet Sun Year (INCIQSY) with Dr. K.R. Ramanathan, Director, Physical Research Laboratory, Ahmedabad as its president. The members of the Committee are : Prof. S.K. Mitra ; Dr. Vikram A. Sarabhai ; Shri P.R. Krishna Rao; Director, Central Board of Geophysics, Hyderabad; Deputy Director, Survey of India, Dehra Dun ; Dr. P.R. Pisharoty ; Dr. Vainu Bappu ; Shri A.C. Ramchandani ; Dr. R.R. Daniel ; and Dr. A.P. Mitra.

The Committee is in charge of planning and execution of the Indian Programme of the International Quiet Sun Year (IQSY) for the period January 1, 1964 to December 31, 1965. Its progromme will include the fields of ionospheric physics, aurora and airglow, geomagnetism, cosmic rays,aeronomy, meteorology and solar activity.

Clarke's Talk at CSIR

Mr. Arthur C. Clarke, science fiction writer and winner of Kalinga Prize for 1962, gave a talk in the CSIR building, New Delhi on Sept. 29, 1962. Dr. S. Husain Zaheer, Director-General, who presided over the function introduced the speaker.

In his informal talk, Mr. Clarke briefly reviewed his life and added that his interests were divided between space and sea. He dealt with underwater expedition and space research and said that space is the most spectacular frontier that science has opened up and space research will have a tremendous impact on the economic, political and cultural spheres. After the talk Mr. Clarke answered a number of questions on various points connected with space research.

Dr. Husain Zaheer, thanking the distinguished visitor for his illuminating talk, wished that Mr. Clarke would find it possible at some future date to make a longer stay in the country. He extended an invitation to him to visit the various national laboratories in the country.

Dr. S. Husain Zaheer

The Andhra Pradesh Centre of the Institution of Engineers (India) gave a reception to Dr. S. Husain Zaheer, Director-General, Council of Scientific & Industrial Research at Hyderabad on Sept. 20, 1962.

Along with Prof. Humayun Kabir, Union Minister for Scientific Research & Cultural Affairs, Dr. Zaheer received a press party who visited NPL, New Delhi, on Sept. 22, 1962. He attended the Research & Industry Meet organized by the Regional Research Laboratory at Hyderabad on Sept. 29, 1962.

CSIR SECRETARIAT, NEW DELHI—Mr. Arthur C. Clarke with Dr. S. Husain Zaheer, Director-General, CSIR and Shri A. J. Kidwai, Secretary, CSIR

B R I E F S

Press Team Visits NPL and CRRI

A party of Pressmen consisting of representatives of thirty newspapers and news agencies visited NPL, and CRRI, New Delhi on Sept. 22, 1962. At NPL, they were welcomed by Dr. W.M. Vaidya, Dy. Director and Shri A.K. Mustafy, Administrative Officer and at CRRI by Prof. S.R. Mehra, Director and Dr. R.K.N. Iyengar, Dy. Director.

The newsmen went round the various divisions of NPL and evinced keen interest in the research work being carried out. They were specially impressed by the pilot plant production of ceramic capacitors, work on industrial carbons and radio-propagation, research on visual glare, and colour-blindness, and the new technique for detection of manganese in blood of industrial workers in manganese mines.

At the CRRI they evinced interest in the way the Institute is tackling road construction problems peculiar to India. The technique of vertical sand drains for laying roads over swampy or marshy terrain, methods of soil stabilisation and the use of surkhi in road construction were some of the achievements of the Institute which they appreciated. The impressions of the party have been published in several appreciative articles in newspapers.

Professor Humayun Kabir, Vice President, CSIR and Union Minister for Scientific Research & Cultural Affairs, Dr. Husain Zaheer, Director-General and Shri A.J. Kidwai, Secretary, CSIR lunched with the party.

Building Research

The Annual Report for 1961-62 of the Central Building Research Institute, Roorkee has been published.

The 44-page report presents the work carried out by the Institute under the following headings: Building Materials, Soil Engineering, Design and Performance of Structures, Efficiency of Building, Building Practice and Productivity, Architectural Division, Information and Survey, and Administration. Research papers published by the staff of the Institute have been listed.

The report indicates some of the lines along which the building materials and construction industries might utilize the results of research to national advantage.

Fruits and Vegetables Preparations

The fourth revised edition of the brochure entitled *Home Scale Preparations of Fruits and Vegetables* has been brought out by the Central Food Technological Research Institute, Mysore.

The brochure includes general instructions regarding selection and preparations of fruits and vegetables for various products and processing techniques. The fruits preparations dealt with include lime and lemon, orange, tomato, cashew apple, sapota, apple, banana, pineapple, jack fruit, guava, passion fruit, grape and loquat. The vegetable preparations dealt with include sweet turnip pickle, lime and green chillie pickle, spiced carrot juice, ginger preserve and candy, petha candy and bamboo preparations. Vernacular names of fruits and vegetables and their distribution have been given. Equipment required for food processing and firms dealing in them are listed.

New Publications

The International Year of the Quiet Sun 1964-65, Bulletin No. I, Indian National Committee for IQSY, NPL, New Delhi: Contains recommendations of the International IQSY Committee Meeting held in Paris in March 1962.

Design of High Strength Concrete Mixes, Building Digest No. 9, CBRI, Roorkee: Outlines simple procedures for the design of high strength concrete mixes.

Painting Woodwork, Building Digest No. 10, CBRI, Roorkee: Briefly describes the preparation of wood surface to be painted, types of paints and the method of using them.

Research Fellowships

The following have been awarded CSIR Fellowships for research in schemes noted against their names:

Senior Fellows

1. SHRI ANAND PERKASH—X-ray diffraction on phenomena at low temperature (Indian Association for the Cultivation of Science, Calcutta)

2. SHRI M.K. SAHA—Research school on high polymer (Indian Association for the Cultivation of Science, Jadavpur).

Junior Fellows

1. SHRI T.K. BANDYOPADHYAY—Structure and genesis of Singhbhum granite (Presidency College, Calcutta).

2. SHRI N. VENKITESWARAN—Effect of the wet-tensile strength of the moulding sands bonded with Indian bentonites on the surface finish of the coatings (Banaras Hindu University, Varanasi).

NML, JAMSHEDPUR—Shri Ananthasayanam Ayyangar, Rajpal of Bihar visited the Laboratory on Sept. 27, 1962. Shri P.I.A. Narayanan, Officer-in-charge, (Ore Dressing) explaining the work on mineral beneficiation and showing beneficiated Salem magnetite concentrates

RESEARCH IN PROGRESS

National Laboratories

CFTRI, MYSORE

Preservation of Fruits by Freezing—Investigations on preservation by freezing have shown that frozen mango slices stored at 0°F and defrosted in a syrup of 50 per cent containing 0.5 per cent of citric acid and 0.005 per cent of ascorbic acid have consumer acceptability even after 18 months of storage. Frozen mango pulp from ripe mangoes stored at 0°F. are good enough for making mango juice and squash after 24 months storage.

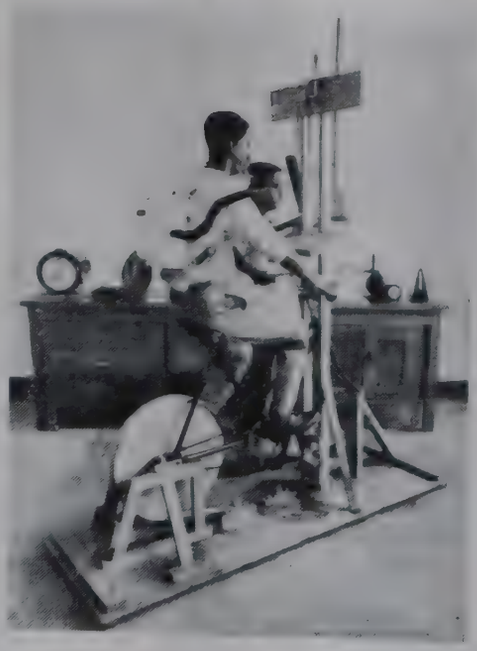
Pine apple rings frozen and stored at 0°F. in polyethylene bags for 12 months have been found to maintain their original flavour, taste and texture when thawed in syrup base fortified with 0.5 per cent citric acid and 0.05 per cent ascorbic acid.

Alteration of Shape and Size in Pine Apples—Pre-harvest sprays on pine apples with 2,4-D (2-4-dichlorophenoxyacetic acid) and MH-40 (Maleic hydrazide-40) have been found to increase their length and decrease their circumference resulting in cylindrical fruits. thereby reducing the quantity of wastes during their canning. Treatment of pine apples with 100 parts per million of alpha-NAA one month before harvest significantly improved their keeping quality.

CMRS, DHANBAD

Bicycle Ergometer—Studies on the assessment of work load and the corresponding physiological reaction of various types of workers in mines have been initiated using a Bicycle Ergometer.

For assessing the physiological reaction against standard or graded work load, the worker is made to work against a certain work load which is calculated from the distance travelled by the Ergometer wheel and the load against which the wheel works. The energy cost of the work is calculated from the rate of oxygen consumption by the worker during work. The physiological reaction is assessed from the pulse rate, respiration rate, blood pressure, etc. of the worker.



CMRS, DHANBAD—Bicycle Ergometer being used for assessment of work load.

Sponsored Research

Biochemical and Physiological studies on Gibberellins—Some aspects of the biosynthesis of gibberellic acid, the physiological effects of gibberellic acid and the occurrence of gibberellin-type substances in plants have been studied. A suitable bio-assay method, a pre-requisite for these studies has been developed. The method is based on the positive response made by the leaf sheath of *Rupsail* rice seedlings to as low as 0.1—10 p.p.m. of gibberellic acid.

Several strains of the fungus, *Gibberella fujikuroi* were found to produce gibberellic acid -C^{14} when grown on culture media containing various C^{14}-labelled compounds. To elucidate biosynthetic steps, several variants of the fungus (usually white in colour) were obtained through ultraviolet irradiation of mycelial suspensions at 100 ergs/sec./sq. mm for 5-7.5 minutes. Of the various methods tried vigorous shaking of the culture media during the entire incubation period followed by low speed centrifugation yielded the finest suspension of mycelial fragments. Some of the mutants which were incapable of producing gibberellic acid had blocks somewhere in the chain of reactions leading to its formation. To locate the blocks these variants were allowed to metabolise C^{14}-labelled compounds. No gibberellic acid-C^{14} could be detected when these strains were fed acetate-1-C^{14} or acetate-2-C^{14} but mevalonic acid-C^{14} was promptly utilised for the production of gibberellic acid. It is therefore established that movalonic acid is an intermediate in the biosynthesis of gibberellic acid and the variants examined were blocked at a step (s) prior to mevalonic acid. Homogenates of the parent strain however were incapable of incorporating acetate-C^{14} into gibberellic acid indicating the liability of some factor (s) concerned with its biosynthesis. Apparently in absence of this factor (s) the biosynthesis does not proceed beyond the mevalonate stage. Homogenates of the variants yield a compound which may be related to but is different from mevalonate.

Some physiological studies concerning the mechanism of action of gibberellic acid have also been carried out. Gibberellic acid has been found to have a marked effect on the growth of *Rupsail* rice leaf sheath as also such dwarf varieties of rice as T433 and T432 Madras dwarfs. Gibberellic acid countered the effect of red light which has a marked effect on certain growth and developmental phenomena.

Several plant families have been surveyed for the occurrence of gibberellin-type substances The family Cucurbitaceae is particularly rich in such substances and partially purified acetone extracts of seeds of the common vegetables *Trichosanthes dioica* (Patal or Palwal) or *Momordica charantia* (Kerala) applied to dwarf mutants of maize seedlings brought about severalfold increase in the growth of the dwarf plants which very soon became as tall as the parent plants—ANIMA DATTA & SHYMAPADY SEN, Bose Institute, Calcutta.

B-vitamins and Protein Metabolism—Metabolic interrelationship of vitamin B_{12} and pantothenic acid and their effect on the synthesis of various tissue proteins has been studied using rats as experimental animals.

The animals were fed on pantothenic acid deficient basal diet and basal diet containing calcium pantothenate. The results of feeding experiments indicate that pantothenic acid deficiency (i) retards the growth of animals, and leads to loss of hair from all parts of the body and sticky bectackled eyes ; (ii) increases three-fold the vitamin B_{12} content of the livers of animals and decreases the vitamin B_{12} content in urine (iii) decreases the regeneration of blood serum protein and lowers the blood serum cholesterol—S. D. AMBEGAOKAR, Haffkine Institute, Bombay.

ERRATUM

The work on 'Assay of Properdin' published in CSIR News, Vol. 12, No. 18, p.3 relates to CDRI, Lucknow.

PERSONAL

Appointments

DR. C. V. SURYANARAYANA—Senior Scientific Officer: Grade I, CECRI, Karaikudi (Aug. 27, 1962).

SARVASHRI B.R. SOMASEKHAR, M N. SRINIVASAN & N.S. VENKATRAMAN—Junior Scientific Officers, NAL, Bangalore (Aug. 1, 1962).

SHRI P.R. SHILPAKAR—Section Officer, RRL, Assam (July 2, 1962).

SHRI R. NARAYANAN—Stores Officer, CMERI, Durgapur (Sept. 11, 1962).

Promotions

SHRI S.N. NAIK—Senior Scientific Officer: Grade II, NAL, Bangalore (Aug. 1, 1962).

SHRI H. C. SEETHARAM—Junior Scientific Offier, NAL, Bangalore (Aug. 1, 1962).

* * *

SHRI T.S. KHANNA, Assistant Director (Traffic), CRRI, New Delhi resigned with effect from Oct. 1, 1962.

SHRI M.S. RAO, Stores Officer, CMERI, Durgapur resigned with effect from Sept. 4, 1962.

* * *

MR. TH. BARLAG, UNESCO Adviser attached to CMERI, Durgapur left on Sept. 19, 1962 on completion of his assignment under the U.N. Special Fund Assistance.

* * *

DR. ATMA RAM, Director, CGCRI, Calcutta returned from U.K. after attending the Annual Meeting of the British Association for the Advancement of Science held at Manchester from Aug. 29 to Sept. 5, 1962. He visited some of the universities and research centres in U. K. including universities of Leeds and Sheffield, British Ceramic Research Association at Stoke-on Trent, British Glass Industries Research Association, and General Electric Company and met some leading scientists in the field of glass and ceramics.

DR. V. SUBRAHMANYAN, Director, CFTRI, Mysore returned from U.K. on Sept. 23, 1962 after participating in the First International Congress for Food Science & Technology held in London from Sept. 18 to 21, 1962. He presided over the Section dealing with the Physiology, Maturation & Transport of Perishables.

DR. N.K. PANIKKAR, Director, Indian Programme for International Indian Ocean Expedition, returned from France on Oct. 1, 1962 after participating in the meeting of the Inter-governmental Oceanographic Commission held in Paris from Sept. 20 to 29, 1962.

SARVASHRI D. M. RAO, C. S. RANGAN & A.N. KUMAR, Senior Scientific Officers, NAL, Bangalore left India on Sept. 22, 1962 for training in foreign aeronautical establishments under fellowships awarded by the International Civil Aviation Organisation, the executing agency for U.N. Special Fund Aid to NAL.

PATENTS & PROCESSES

Patent Filed

83742 : N- *Alkylamino alkyl—benzylamines* — Y.S. Sadanandam, P.B. Sattur, G.S. Sidhu & S.H. Zaheer, RRL, Hyderabad.

Patents Accepted

75820 : *An improved profilograph (area meter) for the measurement of the cross sectional area of mine-airways and for recording the shape of the same*—K.M. Kaiser, CMRS, Dhanbad.

76018 : *New hydrophobic cement*—S.K. Chopra & C.A. Taneja, CBRI, Roorkee.

U.K. PATENT

908929 : *Improvements in or relating to a vehicle lamp fitting for vehicles*—C.R. Gupta, NPL, New Delhi.

Patent Sealed

DUTCH PATENT

101.337 : *Improvements in or relating to the preparation of costus root oil and the products thereof*—G.R. Kelkar & S.C. Bhattacharyya, NCL, Poona.

Process Leased Out

The process for hot dip aluminising of ferrous materials (Patent Nos. 55289, 57938 & 65230) developed by the National Metallurgical Laboratory, Jamshedpur has been leased out for commercial exploitation to one more party, namely, Shri K. Srinivas C-309, Defence Colony, New Delhi.

Mr. K J. Hume

Mr. K. J. Hume, Reader in Production Engineering Technology, Loughborough College of Advanced Technology, has joined CMERI, Durgapur as Adviser under the UNTAB Aid Programme, with effect from Sept. 20, 1962. During his one-year tenure at the Institute, he will assist in organising and developing the Metrology Section.

Born in 1911 in London, Mr Hume studied science and engineering at Regent Street and Northampton Polytechnics, London. He was associated with National Physical Laboratory, Teddington, de Haviland Aircraft Company and Hilger & Watts for severa years. He was the head of the National College of Horology, London for four years.

Mr. Hume is internationally reputed in the field of production engineering and metrology. He is a member of the Institution of Production Engineers and several committees of the British Standards Institution. He is the author of *Engineering Metrology* and joint author of *Practical Metrology*, and has published a number of papers and articles.

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CSIR NEWS

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MEETINGS & CONFERENCE

A meeting of the Committee of the Board of Scientific and Industrial Research will be held at the CSIR Secretariat, New Delhi on Nov. 1, 1962 at 10.00 a.m. Lala Shri Ram will preside.

A meeting of the Board of Scientific and Industrial Research will be held at the Ministry of External Affairs, South Block, New Delhi on Nov. 2, 1962 at 10.00 a.m. Shri Jawaharlal Nehru, Prime Minister, will preside.

A meeting of the Governing Body will be held at the Ministry of External Affairs, South Block, New Delhi on Nov. 3, 1962 at 9.30 a.m. Shri Jawaharlal Nehru, Prime Minister, will preside.

Research and Building Industry

A three day conference on 'Impact of Research on Building Industry' organised by the Central Building Research Institute, Roorkee, will commence on Nov. 1, 1962.

Leading engineers, research workers and representatives of building industry are expected to attend the conference.

More than 20 papers will be presented and discussed in the conference in the following five sessions: (i) Structures, (ii) Foundations, (iii) Efficiency of Buildings, (iv) Building Materials, and (v) Building Practice and Standardization.

Dr. S. Husain Zaheer, Director-General, Council of Scientific & Industrial Research, addressed the guests.

Nearly 20 scientists led by Shri R. Jayaraman, Senior Scientific Officer, Indian Programme of the International Indian Ocean Expedition, CSIR, left on the first Scientific cruise which will last for about 15 days.

Dr. Husain Zaheer

Dr. S. Husain Zaheer, Director-General, Council of Scientific & Industrial Research, delivered a lecture at the Muslim University, Aligarh on 'Synthesis of organic compounds likely to be active as depressants of the central nervous system specially analgesics, hypnotics, sedatives and anticonvulsants' (Oct. 6, 1962).

Dr. Zaheer visited the Indian Institute for Biochemistry & Experimental Medicine, Calcutta, Central Glass & Ceramic Research Institute, Calcutta and Birla Industrial & Technological Museum, Calcutta (Oct. 15 & 16, 1962).

INS KISTNA Launched

Prof. Humayun Kabir, Minister for Scientific Research & Cultural Affairs and Vice-President, CSIR declared the first scientific cruise of INS KISTNA ready to go in the Arabian Sea (*CSIR News*, Vol. 12, No. 19, p. 1) at a ceremony held at Bombay on Oct. 9, 1962. Dr. N.K. Panikkar, Director, Indian Programme of the International Indian Ocean Expedition, welcomed the guests.

Prof. Kabir in the course of his inaugural address, said that the Indian Ocean Expedition which had been in progress for more than a year provided a unique example of international cooperation for increasing scientific knowledge which would benefit the entire world. He hoped that this expedition would also create an intellectual climate where Indians would think without inhibition and revive India's old heritage of intrepid voyaging—both mental and physical.

Dr. D.N. Wadia, Chairman of the Indian National Committee on Oceanic Research, gave an account of the oceanic researches to be conducted by INS KISTNA and the features of the overall explorations in the Indian Ocean. He told that the biological and meteorological data collected during the cruise would be sorted and classified at the International Biological Centre to be opened in Cochin and the International Meteorological Centre at Bombay.

Prof. Humayun Kabir accompanied by Shri Y.B. Chavan and Dr. Husain Zaheer (L-R) examining the marine collections at the Laboratory of the Research Ship INS KISTNA.

B R I E F S

NBG Training Course

A two-year course for advanced training for botanists and horticulturists has been started (Aug. 20, 1962) at the National Botanic Gardens, Lucknow. Prof. K.N. Kaul, Director, inaugurated the course. The course covers a comprehensive syllabus comprising systematic botany, plant morphology and physiology, plant tissue and organ culture, climatology, soils and menures, introduction, cultivation and propagation of economic and ornamental plants, laying-out and maintenance of different kinds of gardens, plant improvement, storage of fruits and vegetables, etc. The minimum qualification for admission to the course is a Degree.

The theory-lectures and the practical training are given by the members of the staff of the National Botanic Gardens.

A qualifying examination would be held at the end of the course and a Certificate awarded to the successful trainees.

Utilization of Cotton Linters

A two-day Research & Industry Meet on 'Indian Cotton Linters' was held at RRL, Hyderabad during Sept. 28-29, 1962 (*CSIR News*, Vol. 12, No. 13, p.1). Forty five delegates representing scientists, technologists, producers and consumers of cotton linters participated in the deliberations.

The discussions at the Meet were spread over four technical sessions : Statistical and Economic Data, Production Aspects, Refining and Specifications, and General Considerations.

The topics discussed during the first session include production, consumption and disposal of linters. It was agreed that cotton linters provided the only readily available cellulose raw material that could effectively replace wood pulp, which is at present imported to the tune of Rs. 6 crores (50,000 tons) a year for paper and rayon industry alone.

The second session dealt with the machinery and equipment, the operating conditions, the quality of the linters produced, and cost of production. The need for setting up a unit in India for producing delinting machinery was stressed.

The techniques available for refining and bleaching of cotton linters and the methods for analysis of raw and refined linters were discussed at length in the third session. It was recommended that apart from research on chemistry of linters, research teams consisting of chemists and engineers should collect necessary information on the technical and engineering know-how of cottonseed processing and make them available both to producers and the consumers. A thorough investigation on the economic size of the unit required for lint cleaning and refining was also recommended to be undertaken.

The need to draw up Indian Standard Specifications for Indian linters was emphasised during the discussions held in the Fourth session.

CSIR Participates in Food Science Congress

A four-member delegation of the Council of Scientific & Industrial Research headed by Dr. V. Subrahmanyan, Director, CFTRI, Mysore attended the First International Congress of Food Science and Technology, London (Sept. 18-21, 1962). The other members of the delegation were : Dr. A. Sreenivasan, Deputy Director, Dr. D.S. Bhatia and Shri A. Rahman, Assistant Directors, CFTRI, Mysore, and Dr. S. R. Rao, Senior Scientific Officer, RRL, Hyderabad. Dr D.P. Sen, at present at the Torry Research Station, Aberdeen also joined the delegation.

The delegation participated in various sections of the congress and presented the work being done in India. Dr. V. Subrahmanyan presided over one of the scientific sessions under the section, Physiology of Maturation, Transportation and Storage of Foods, Fruits and Vegetables. Dr. A. Sreenivasan was one of the Overseas Vice-Presidents of the Congress.

The members of the delegation presented papers and participated in the following symposia organised by the Congress : (i) National and International Aspects of Abstracting and Disseminating the Literature of Food Science and Technology, (ii) Education and Training of Food Scientists and Technologists, (iii) Changing Patterns of Consumption of Food, and (iv) Effects of Modern Agricultural Practices of Foods.

At the special discussion on 'Protein-rich Foods' organised by the UNICEF, Dr. V. Subrahmanyan, Dr. A. Sreenivasan and Dr. D. S. Bhatia participated.

Dr. A. Sreenivasan, Dr. D. S. Bhatia, Dr. D.P. Sen and Shri A. Rahman attended the 'Advanced Study Course on Biochemistry and Biophysics in Food Research' at Cambridge (Sept. 23-29). Drs. A. Sreenivasan & D.S. Bhatia presented papers on 'Zone Electrophoresis' and 'Indian Multipurpose Food' respectively.

Research Fellowships

The following have been awarded CSIR Junior Fellowships for research in schemes noted against their names:-

1. Shri A.R. Chetal—Study of electronic structure of solids by x-ray spectroscopy (University of Poona, Poona).

2. Shri G.R.A. Shanbag—Standardization of methods of soil analysis for engineers in general and road engineers in particular (Field Research Station, Bombay).

3 & 4. Sarvashri S. Satynam Babu & N. Mutyam Rao—Scour around bridge piers and abutments (Osmania University, Hyderabad).

5. Shri Gourdas Biswas—Transformation studies in microseims (University of Kalyani, Kalyani).

6. Shri Govind Prasad—Study of molecular interaction from the properties of liquids (Lucknow University, Lucknow).

7 & 8. Sarvas iri V.P. Rao & Y. Latchanna Dora—Influence of physico-chemical processes on the sedimentary dispositional environments of east coast of India (Andhra University, Waltair).

9. Shri K.K. Kapoor—Ultrasonic attenuation of metals at low temperature (University of Delhi, Delhi).

10. Shri Nand Lal Munjal—Chemical reaction during flow through rocket nozzle (University of Gorakhpur, Gorakhpur).

11 & 12. Sarvashri H C. Pani & S.P. Verma—Studies in complex molecules (D.S.B. Government College, Nainital).

RESEARCH IN PROGRESS

National Laboratories

NML, JAMSHEDPUR

Recovery of Copper from Copper Ore—Batch and pilot plant flotation studies have been undertaken on copper ore from Khetri (assaying, Cu, 0.8; Fe, 18.63; S, 3.08; SiO_2, 54.65; Al_2O_3, 9.62; and MgO, 4.54 per cent and 2.37 dwt. Ag and 0.13 dwt Au per ton) received from the National Mineral Development Corporation. The flotation studies using potassium ethyl xanthate as collector for chalcopyrite and lime as a depressant for sulphide gangue indicate that the optimum grind for ore is 62.5 to 73.3 per cent passing through 200 mesh. Two cleanings of the rougher float with recirculation of the middlings after regrinding to —200 mesh yield final recoveries of 81.4 and 81.7 per cent Cu for a concentrate grade of 22.0 and 24.5 per cent Cu respectively. Slightly better results are obtained when higher xanthates and Aerofloat 238 are employed.

CFRI, JEALGORA

Cracking of Gasoline—The effect of temperature on the composition and yield of unsaturated hydrocarbons obtained on thermal cracking of gasoline has been studied. With a feed rate of 25-40 litre/hr. of gasoline and at a reaction temperature of 700—1000°C., the major unsaturates present in the product gases are ethylene and higher members of the series, their total being about 36 per cent under favourable conditions.

With further increase in reaction temperature the percentage of propylene and higher members of the series decreases in the product gases and favouring the formation of acetylene.

IIBEM, CALCUTTA

Antiviral and Antitumour Antibiotic—A new type of antibiotic substance—Jawaharene—has been isolated from a strain of *Aspergillus* grown in a semisynthetic medium consisting of dextrinised starch and minerals. Jawaharene is extracted from the culture media with acetone and purified by extraction with petroleum ether. The pure antibiotic is a dark brown liquid insoluble in water but dispersible in water containing *Tween* 80. It is highly soluble in solvents. The ultraviolet absorption spectrum of the antibiotic in hexane indicates its polyene nature. It is very active against Bacteriophages; Herpes Simplex, Newcastle disease; Vaccinia viruses are inactivated in tissue cultures at very low concentrations of the antibiotic. It protects rabbits against Vaccinia infections and is highly active against mouse leukemia and mouse tumour. The antibiotic causes destruction and lysis of a blood flagellate, *Leishmania donovani* at low concentration. It is feebly active against Grampositive and Gram-negative organisms — D .K. Roy.

Sponsored Research

Storage of Fruits—The combined effect of hormone treatment and wax coating on storage of mangoes, orange and *pulwuls (Trichosanthes dioica)* has been investigated. Among the hormones, 2,4-dichlorophenoxyacetic acid (2,4-D) treatment (1000 p.p.m.) followed by paraffin-carnuaba wax coating is most effective in retarding the ripening in *Fazli* and *Langra* varieties of mangoes. Treated *Fazli* mangoes remain in good marketable condition for 20 days as compared to 8 days for untreated mangoes at 24°C. *Langra* variety of mangoes after treatment remain in good condition for 16 days at room temperature (20-32°C.) while the untreated fruits can be stored only for 6 days.

The hormone (2,4-D)- wax treatment is very effective in prolonging the storage life of Nagpur and Darjeeling oranges. Both the varieties of fruits remain in good marketable condition for 50 and 35 days at room temperature (16-32°C.) and 90 and 75 days at 4.4°±1°C. respectively.

The hormone treatment does not improve the storage life and retard the ripening of *pulwuls*. However, paraffin wax coating is most effective in prolonging the storage life. The wax coated *pulwuls* remain good and fresh for 7, 21, 5 and 25 days at room temperature (16-32°C.), 24°C., 38°C. and 4.4°C. respectively. Packaging the green mature fruits in perforated and non-perforated alkathene bags reduces the desiccation, but *pulwuls* become harder in texture and susceptible to fungus attack. The fungicides, sofanate and topane, are effective at 0.12 per cent concentration in preventing fungal attack but *pulwuls* get discoloured—S.K. Mukherjee & S. De, Jadavpur University, Calcutta.

Membrane Filter Technique—A comparative study of the Most Probable Number (MPN) and the Membrane Filter (MF) techniques for bacteriological examination of drinking water has been undertaken.

Two hundred samples of water—from natural sources, artificially inoculated distilled water and tap water with residual chlorine—have been examined by both the techniques in respect of coliform densities. No statistically significant difference between the mean coliform densities has been noticed in the case of natural waters and artificially inoculated waters free from residual chlorine. The coliform detection efficiency of the two methods is identical, the MF/MPN ratio being 1.196 for natural waters samples and 1.084 for artificially inoculated distilled water. However, the precision of the MF technique in the case of artificially inoculated distilled water is double that of the MPN technique.

In the case of tap water with residual chlorine the detection of coliforms is very poor by MPN techniques as compared to MF technique and there is statistically significant difference between the mean coliform densities, the MF/MPN ratio being as high as 8.9

The cost of chemicals required for preparing media for MF tests is almost the same as that for MPN tests—S.J. Arciwala & B.D. Currawala, Victoria Jubilee Technical Institute, Bombay.

Plasticizers for Polyvinyl Chloride (PVC) Resins—Two compounds, Acetoflex-C and Acetoflex H, have been prepared by acetylation of monoglycerides obtained from castor oil or its hydrogenated derivative. These compounds show excellent compatibility with PVC resins and can be used for complete or partial

substitution of the usual plasticisers like dioctyl phthalate. These are ideal for use in foamed mattresses and cushion compositions which are not likely to be repeatedly washed or came in contact with hot alkaline liquids. Acetoflex H is more light-stable than Acetoflex C on account of the absence of any double-bond in its chemical structure—R.K. BHATNAGAR, R.K. KOCHHAR & S.K. DEY, Shri Ram Institute for Industrial Research, Delhi.

PERSONAL

Appointments

Shri G. S. SRIVASTAVA—Senior Scientific Officers : Grade II, NBG, Lucknow (Sept. 9, 1962).

SHRI ZAHIRUDDIN AHMED WARSI—Junior Scientific Officer, CBRI, Roorkee (Sept. 29, 1962).

SHRI K.L. WADHAWAN—Administrative Officer, CEERI, Pilani (Aug. 24, 1962).

Promotions

SHRI K.L. HANDA—Senior Scientific Officer : Grade I, RRL, Jammu (Sept. 20, 1962).

SHRI R.M. GARG—Junior Scientific Officer, CBRI, Roorkee (Sept. 27, 1962).

Resignations

SHRI B.L. SEN—Assistant Director, NML, Jamshedpur (Oct. 10, 1962).

SHRI T. M. SRINIVASAN—Junior Scientific Officer, CEERI, Pilani (Aug. 13, 1962).

SHRI P. R. HARIHARAN—Junior Scientific Officer, CEERI, Pilani (Aug. 30, 1962).

SHRI D.N. MITTAL, Junior Scientific Officer, CBRI, Roorkee (July 28, 1962).

Deputation

DR. B. R. NIJHAWAN, Director, NML, Jamshedpur and Leader of the Non-Ferrous Metal Industry Study Team sponsored by the National Productivity Council returned to India (Oct. 4, 1962) after nine weeks' tour to U.S.A. and U.K. The team studied the techniques of production, plant and equipment used and optimum productivity achieved in different branches of metal industry relating to aluminium, magnesium and copper and visited secondary alloy refinery and research establishments in these countries.

Nominations

DR. I.C. CHOPRA, Deputy Director, RRL, Jammu has been nominated a member of the Syndicate of the Jammu and Kashmir University.

Dr. S.L. KAPUR, Assistant Director, NCL, Poona, has been nominated a member of the Council of the Indian Rubber Manufacturers' Research Association, Bombay.

SHRI S.P. VENKETESWARAN, Assistant Director, NAL, Bangalore, has been nominated a member of the Board of Directors of the National Instruments Ltd., Calcutta, Ministry of Commerce & Industry.

SHRI T.V. RAMAMURTHI, Officer-on-Special Duty, NPL, New Delhi has been nominated a member of the Panel for Electronics and Wireless Equipment Industry, Ministry of Commerce & Industry.

DR. A.B. CHATTERJEE, Assistant Director, NML, Jamshedpur has been nominated a member of the Pig Iron Sectional Committee of the Indian Standards Institution (ISI).

SHRI P.P. BHATNAGAR, Assistant Director, NML, Jamshedpur, has been nominated a member of the Ferro Alloys Sectional Committee of the ISI.

SHRI H.V. MIRCHANDANI, Assistant Director and SHRI L.S. TULI, Senior Scientific Officer, CBRI, Roorkee have been nominated as members of the Timber Engineering Sub-Committee of the ISI.

SHRI N. S. MATHUR, Research Engineer, NPL, New Delhi has been nominated a member of Refrigeration and Air-Conditioning Equipment Testing Sub-Committee of the ISI.

SHRI MOHAN RAI, Junior Scientific Officer, CBRI, Roorkee has been nominated a member of the Committee constituted by the Khadi and Village Industry Commission, Bombay to advise on matters relating to promotion of research activities in respect of Cottage Industry of Lime Stone and its Products.

Awards & Honours

SMT. ZUBEDA KHATOON OSMANI, Senior Scientific Assistant, RRL, Hyderabad has been awarded Ph. D. degree by the Osmania University for her thesis : *Studies on the mechanism of the physiological action of insecticides at different temperatures.*

SHRI H. DAKSHINAMURTHY, Senior Research Fellow, RRL, Hyderabad has been awarded Ph. D. degree by the University of Madras for his thesis : *Studies on phenolic resins.*

SARVASHRI D. N. SHROF & SHANTILAL M. MEHTA have been re-elected as the President and Vice President respectively of SASMIRA for the year 1962-63.

PATENTS & PROCESSES

Patent Filed

84202 : *Heterocyclic compounds of pharmacological interest*—P.P. Rao, P.B. Sattur, G.S. Sidhu & S.H. Zaheer, RRL, Hyderabad.

Patents Sealed

71702 : *A process for decolorisation of glass*—Atma Ram, S.K. Gupta, & S.N. Prasad, CGCRI, Calcutta.

72851 : *A modified process for preferential separation of the non-fatty constituents and simultaneous purification of the seed lipids*—Y.C. Awasthi, C. Mitra & K.N. Kaul, NBG, Lucknow.

72869 : *Preparation of fatty acids*—C.C. Ninan, S.R. Rao & S.H. Zaheer, RRL, Hyderabad.

U.K.

894638 (Corresponding to Indian Pat. No. 64959) : *A process for the preparation of dihydrojasmone*—J.H. Amin & S.C. Bhattacharyya, NCL, Poona.

Process Leased Out

The process on Improved Graphite Clay Bonded Crucibles (Indian Patent No. 62352) developed by the National Metallurgical Laboratory, Jamshedpur, has further been leased out to M/s. *Andhra Pradesh Mining Corporation Ltd.*, Hyderabad.

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CSIR NEWS

VOL. 12 NEW DELHI—NOV. 12, 1962 : KARTIKA 21, 1884 No. 21

GOVERNING BODY DECISIONS

The newly constituted Board of Scientific and Industrial Research and the Governing Body of the Council of Scientific and Industrial Research met in New Delhi on Nov. 2 and 3, 1962 respectively. Prime Minister, Shri Jawaharlal Nehru presided.

The Governing Body placed on record its appreciation of the valuable services rendered by Prof. M.S. Thacker as Director-General of Scientific and Industrial Research.

The Governing Body approved in principle a 10-year programme of development of the National Geophysical Research Institute, Hyderabad,

The Governing Body accorded approval to the setting up of a coal gasification plant with a capacity of 30,000 cu. m. per day of synthesis gas or equal fuel gas at the Regional Research Laboratory, Hyderabad. A sum of Rs. 21 lakhs was sanctioned for the project. A two-year project for the pilot plant production of tartaric acid at the National Chemical Laboratory, Poona was also approved.

The publication of an illustrated catalogue of Medicinal Plants of India was approved. An Editorial Committee consisting of Dr. M.S. Randhawa, Col. R.N. Chopra, Director-General of Scientific and Industrial Research, Shri Badhwar of Forest Research Institute, and a representative of the Central Indian Medicinal Plants Organisation has been constituted to advise on the publication.

New Research Schemes

Thirty-one new research schemes covering various branches of science, engineering and technology (*see* p. 4), and grant-in-aid to 11 retired scientists were sanctioned. The Governing Body approved also the provision of grant to the Indian Plywood Manufacturers' Research Association. The main laboratory of the Association will be located at Bangalore; the possibility of locating a field laboratory close to the Kalyani University will be explored.

Symposia

The following symposia will be held during 1963 :

1. *Bleaching earths/active carbons*—Regional Research Laboratory, Hyderabad (June/July 1963).

(*Contd on p. 2, col. 2*)

Bhatnagar Award

The Governing Body has decided to present the Shanti Swarup Bhatnagar Award for 1959 jointly to Prof. K. Chandrasekharan, Professor of Mathematics, Tata Institute of Fundamental Research, Bombay and Dr. C. Radhakrishna Rao, Professor and Head of the Division of Theoretical Research Training, Indian Statistical Institute, Calcutta.

CSIR Contributions to NDF

Response from members of the staff of the national laboratories and CSIR Secretariat to the appeal made by Director-General, Scientific and Industrial Research for donations to the National Defence Fund has been immediate and encouraging. They donated a day's salary to the Fund and decided to forego all leave except in cases of illness or serious personal emergency. Staff of some of the Laboratories have decided to contribute atleast 10 per cent of their salary to P.F. and National Savings Certificates and Bonds. They have already raised their daily working time by an hour.

The total contributions amounting to Rs. 59,337.36nP. received so far from 24 national laboratories and CSIR Secretariat (including CSIR Cooperative Thrift & Credit Society Ltd. & CSIR Club) and gold ornaments donated by some individuals were presented to Dr. S. Husain Zaheer, Director-General, Scientific & Industrial Research at a function held at CSIR Secretariat on Nov. 9, 1962.

CSIR Secretariat—Dr. S. Husain Zaheer, Director-General, receiving CSIR contribution to NDF from Shri A.M. Zutshi 'Gulzar', President, CSIR Staff Association

BRIEFS

Refresher Course for Leather Technologists

A three-month refresher course for leather technologists, organised by the Asian Productivity Organisation, was inaugurated at the Central Leather Research Institute, Madras on Nov. 1, 1962 by Dr. Y. Nayudamma, Director of the Institute. Representatives from Japan, Thailand, Formosa and Philippines are participating in the course.

Lattice Defects and Dynamics

The six-day symposium on Lattice Defects and Lattice Dynamics, organised jointly by the National Physical Laboratory and the University Grants Commission, concluded on Oct. 13, 1962 (*CSIR News*, Vol. 12, No. 17, p. 4). Prof. Humayun Kabir, Minister for Scientific Research and Cultural Affairs and Vice-President, CSIR inaugurated the symposium.

About 70 scientists from universities, national laboratories, defence laboratories, Tata Institute of Fundamental Research, Atomic Energy Establishment, Trombay, Indian Institutes of Technology, and other research institutions participated in the symposium. Altogether 13 review lectures were delivered and 44 original papers were presented and discussed.

Research and Building Industry

A three-day conference on Impact of Research on Building Industry was organised by the Central Building Research Institute at Roorkee from Nov. 1 to 3, 1962. Lt. Gen. H. Williams, former Director of the Institute inaugurated the conference.

About 40 delegates including engineers, research workers and representatives of building industry participated in the deliberations of the conference. Shri Dinesh Mohan, Deputy Director-in-Charge proposed a vote of thanks.

Twenty-two papers were presented and discussed in the following five sessions: Structures, Foundation Engineering, Efficiency of Buildings, Building Materials, and Building Materials Industry.

CECRI Annual Report, 1961-62

The 74-page report presents the work carried out by the Institute under the following headings: Electrothermics, Fused Salt Electrolysis, Electro-winning and Electrodeposition, Inorganic Chemicals of Technical Importance, Technical Electro-organic Preparation, Lead Dioxide Electrodes and their Applications, Batteries, Studies on Anodization, Corrosion Studies and Electrode Kinetics. Research, review and general papers published, patents taken and instruments designed and fabricated at the Institute are listed.

GOVERNING BODY DECISIONS

(*Contd from p. 1, col. 2*)

2. *Recent advances in the development and production of medicinal and aromatic plants*—Central Indian Medicinal Plants Organisation and the Regional Research Laboratory, Jammu (Nov. 1963).

3. *Nucleic acids*—Regional Research Laboratory, Hyderabad (Nov. 1963).

A Winter School on *Advanced Methods of Crystallography* at Madras (Jan. 22 to 27, 1963) and a Summer School on *Molecular Physics* at Kodaikanal (May-June, 1963) will be organised under the auspices of the Physical Research Committee.

Finance Sub-Committee Reconstituted

The President, Council of Scientific & Industrial Research has been pleased to reconstitute the Finance Sub-Committee of the Governing Body for a period of three years with effect from April 1, 1962. The Committee consists of the following: Shri Morarji Desai, Union Minister for Finance (Chairman), Director-General, Scientific & Industrial Research and Financial Adviser to CSIR (Members, ex-officio), Lala Shri Ram, Dr. D.S. Kothari, Dr. K.A. Hamied, Shri J.J. Ghandy (Members), and Secretary, CSIR (Member, ex-officio).

Joint Sub-Committee of Governing Body and Board of CSIR

The Vice-President, CSIR has approved the constitution of a Joint Sub-Committee of the Board of Scientific & Industrial Research and Governing Body to examine and report on the various items coming up before the Board for consideration at its meetings. The Sub-Committee will consist of the following: Lala Shri Ram (Chairman), Dr. S. Husain Zaheer, Dr. S. Bhagavantam, Shri D.C. Baijal, Dr. D.S. Kothari, Shri P.A. Narielwala, Dr. S.R. Palit, Shri Abdul Quadir, Dr. M.S. Randhawa, Dr. Vikram A. Sarabhai, Dr. K.A. Hamied and Prof. P. Maheshwari.

PERSONAL

SHRI DINESH MOHAN, Deputy Director, CBRI, Roorkee took over charge as Deputy Director-in-Charge of the Institute from Oct. 16, 1962.

Appointments

SHRI H. K. MULCHANDANI—Senior Scientific Officer: Grade I, IIP, New Delhi (Sept. 7, 1962).

SHRI P. K. GOEL—Senior Scientific Officer: Grade I, IIP, New Delhi (Oct. 12, 1962).

SHRI T. SHANKARAN—Senior Technical Officer: Grade I, CSIO, New Delhi (Oct. 26, 1962).

SHRI P. N. BHAMBI—Senior Scientific Officer: Grade II, IIP, New Delhi (Sept. 17, 1962).

SHRI K. S. ANAND—Senior Scientific Officer: Grade II, IIP, New Delhi (Sept. 3, 1962).

SARVASHRI K. V. SUNDARAM & BIJALI CHAKRAVARTI—Senior Scientific Officers: Grade II, CMRS, Dhanbad (Oct. 18 & 22, 1962)

SHRI G. S. BHARGAVA—Junior Scientific Officer, IIP, New Delhi (Sept. 3, 1962).

SARVASHRI B. K. SAXENA & T. N. GUPTA—Junior Scientific Officers, CBRI, Roorkee (Oct. 3 &4, 1962)

SHRI P. K. SARKAR—Junior Scientific Officer, CMRS, Dhanbad (Oct. 16, 1962).

SHRI K. D. SHARMA—Junior Technical Officer, CSIO, New Delhi (Oct. 17, 1962).

DRS. JAGDISH MISRA & C. P. GARG—Pool Officers, CDRI, Lucknow (Oct. 26 & 29, 1962).

Promotions

SHRI S. K. SURI—Senior Scientific Officer: Grade I, CSIO, New Delhi (Oct. 9, 1962).

SHRI A. D. JOSHI—Engineer Officer, CSIR, New Delhi (Oct. 24, 1962).

SHRI A. C. BANERJEE—Information Officer, CBRI, Roorkee (Oct. 15, 1962).

SHRI M. M. SHIRSALKAR—Junior Scientific Officer, CBRI, Roorkee, (Oct. 15, 1962).

(*Contd on p. 6, col. 1*)

GOVERNING BODY AND BOARD RECONSTITUTED

The Government of India have notified that for the purposes of the Societies Registration Act (XXI of 1960), the Governing Body of the Council of Scientific & Industrial Research and the Board of Scientific & Industrial Research have been reconstituted for a period of three years with effect from April 1, 1962 and shall consist of the following :

GOVERNING BODY

1. Prime Minister of India, (*President*)
2. Minister of Scientific Research & Cultural Affairs, New Delhi (*Vice-President*)
3. Shri Morarji Desai, Minister for Finance, New Delhi
4. Shri K.C. Reddy, Minister for Commerce & Industry, New Delhi
5. Shri K.D. Malaviya, Minister for Mines & Fuel, New Delhi
6. Shri C. Subramanian, Minister for Steel & Heavy Industries, New Delhi
7. Bakshi Ghulam Mohammad, Prime Minister, Jammu & Kashmir, Srinagar
8. Shri Y.B. Chavan, Chief Minister, Maharashtra State, Bombay
9. Shri P.C. Sen, Chief Minister, West Bengal, Calcutta
10. Shri S. Nijalingappa, Chief Minister, Mysore State, Mysore
11. Prof. M.S. Thacker, Member, Planning Commission, New Delhi
12. Shri A.K. Ghosh, Secretary to the Govt. of India, Ministry of Scientific Research & Cultural Affairs, New Delhi
13. Dr. S. Husain Zaheer, Director-General, Scientific & Industrial Research, New Delhi
14. Financial Adviser to CSIR (Jt. Secretary, Ministry of Finance), New Delhi
15. Dr. H.J. Bhabha, Secretary, Department of Atomic Energy, Apollo Pier Road, Bombay
16. Shri D.N. Bhattacharjee, President, Bengal National Chamber of Commerce, Calcutta
17. Dr. S. Bhagavantam, Director-General, Defence Research & Development Organisation, New Delhi
18. Shri K.K. Birla, 8, India Exchange Place, Calcutta
19. Prof. S.N. Bose, National Professor, 22, Ishwar Mill Lane, Calcutta
20. Shri J.J. Ghandy, Tata Iron & Steel Co. Ltd., Jamshedpur
21. Dr. K.A. Hamied, 289, Bellasis Road, Byculla, Bombay
22. Shri S.S. Khera, Secretary to the Cabinet, Cabinet Secretariat, New Delhi
23. Dr. D.S. Kothari, Chairman, University Grants Commission, New Delhi
24. Shri Arvind N. Mafatlal, Mafatlal House, Backbay Reclamation, Bombay-1
25. Prof. P.C. Mahalanobis, Member, Planning Commission, New Delhi
26. Prof. P. Maheshwari, University of Delhi, Delhi
27. Dr. A. Ramaswamy Mudaliar, India Steamship House, 21, Old Court House Street, Calcutta
28. Dr. Vikram A. Sarabhai, Physical Research Laboratory, Navrangpura, Ahmedabad-9
29. Lala Shri Ram, 22, Curzon Road, New Delhi
30. Shri J.R.D. Tata, Chairman, Tata Industries Ltd., Bombay House, Bombay
31. Dr. D.N. Wadia, National Professor, 10, King George's Avenue, New Delhi

32.& Two representatives of Board
33. of Scientific & Industrial Research

BOARD

1. Prime Minister of India (*President*)
2. Minister of Scientific Research & Cultural Affairs, New Delhi (*Vice-President*)
3. Shri N. Kanungo, Minister for Industries, New Delhi
4. Shri Manubhai Shah, Minister for International Trade, New Delhi
5. Shri B. Patnaik, Chief Minister, Orissa, Bhubaneswar
6. Shri R. Sankar, Chief Minister, Kerala, Trivandrum
7. Prof. M.S. Thacker, Member, Planning Commission, New Delhi
8. Dr. S. Husain Zaheer, Director-General, Scientific & Industrial Research, New Delhi
9. Dr. D. Banerjee, National Rubber Manufacturers Ltd., Calcutta
10. Dr. H J. Bhabha, Secretary, Department of Atomic Energy, Apollo Pier Road, Bombay
11. Dr. S. Bhagavantam, Director-General, Defence Research & Development Organization, New Delhi
12. Prof. S N. Bose, National Professor, 22, Ishwar Mill Lane, Calcutta
13. Shri G.K. Devarajulu, Avanashi Road, Coimbatore
14. Shri D.C. Baijal, Chairman, Railway Board, New Delhi
15. Shri Y.A. Fazalbhoy, Photophone Equipment (P) Ltd., 11, Marine Lines, Bombay-1
16. Dr. Gurbaksh Singh, Head of the Department of Chemistry, Banaras Hindu University, Varanasi
17. Dr. Akhlaq R. Kidwai, Professor of Chemistry, Aligarh Muslim University, Aligarh
18. Shri Ravi L. Kirloskar, Kirloskarwadi, Satara District, Maharashtra
19. Dr. D.S. Kothari, Chairman, University Grants Commission, New Delhi
20. Prof. S. Mehdi Ali, Professor of Zoology, Marathawada University, Aurangabad
21. Prof. P. C. Mahalanobis, Member, Planning Commission, New Delhi
22. Shri K. N. Mukerjee, Bakulia House, Calcutta.
23. Shri P. A. Narielwala, Tata Industries, Bombay House, Bruce Street, Bombay
24. Dr. S. R. Palit, Jadavpur University, Calcutta
25. Dr. C. G. Pandit, Director, Indian Council of Medical Research, New Delhi
26. Dr. B. P. Pal, Director, Indian Agricultural Research Institute, New Delhi
27. Shri Abdul Quadir, Chief Electrical Engineer, Andhra Pradesh, Hyderabad
28. Lala Shri Ram, 22, Curzon Road. New Delhi
29. Dr. G. N. Ramachandaran, Professor of Physics, Madras University, Madras
30. Shri P. R. Ramakrishnan, Principal, Coimbatore Institute of Technology, Coimbatore

31. Dr. M. S. Randhawa, Adviser, Natural Resources, Planning Commission, New Delhi
32. Dr. A. K Saha, Saha Institute of Nuclear Physics, Calcutta
33. Shri K. C. Sharma, General Manager, Fertilizer Corporation of India Ltd., Nangal Unit, Nangal
34. Dr. Triguna Sen, Rector, Jadavpur University, Calcutta
35. Dr. D. N. Wadia, National Professor, 10, King George's Avenue, New Delhi
36. Dr. B. R. Nijhawan, Director, National Metallurgical Laboratory, Jamshedpur
37. Dr. Y. Nayudamma, Director, Central Leather Research Institute, Madras
38. Dr. V. Subrahamanyan, Director, Central Food Technological Research Institute, Mysore
39. Dr. J. C. Ray, Director, Indian Institute for Biochemistry & Experimental Medicine, Calcutta

NEW RESEARCH SCHEMES

On the recommendation of its Advisory Board, the Governing Body of the Council have sanctioned the following new research schemes :

Physics

1. *Absorption of ultrahigh frequency radio waves and microwaves in organic liquids and in opalescent binary liquid mixtures*—Dr. S. N. Sen, Jadavpur University, Calcutta.

2. *Thermal neutron scattering from solids and liquids*—Dr. L. S. Kothari, University of Delhi, Delhi.

3. *Spectral studies on uranyl salts and their solutions*—Dr. D.P. Khandelwal, Rajasthan University, Jaipur.

4. *A study of the nature of lattice vibrations in crystals by employing Mossbauer's technique*—Dr. Ved Prakash Duggal, Delhi University, Delhi.

5. *Stability problems in plasma physics and magnetohydrodynamics in relation to astrophysical phenomena*—Dr. S. K. Trehan, Delhi University, Delhi.

6. *Development of a form of the Oxford-Kew ozone sonde* (Brewer and Millford, 1960) *suitable for extensive routine use in India and a pilot survey of the height distribution of atmospheric ozone in India*—Dr. Earnest Lewis Simmons, Wilson College, Bombay.

7. *Theoretical investigations on molecular spectra*—Dr. S. Datta Majumdar, Calcutta University, Calcutta.

8. *Radiation damage in solids by electron spin resonance*—Dr. D.V.G. L. N. Rao, Andhra University, Waltair.

Chemistry

9. *Fundamental studies on the flotation of manganese dioxide*—Dr. M.C. Rastogi, Lucknow University, Lucknow.

Pharmaceuticals & Drugs

10. *Synthesis of potential carcinostatic boron heterocyclics*—Dr. A. B. Sen, Lucknow University, Lucknow.

11. *Chemical investigation of some Ayurvedic drugs* : Balsamodendron mukul *Hook ex-Stocks and* Smilax china *Linn.*—Prof. S. Rangaswami, Andhra University, Waltair.

12. *Anti-cancer agents based on synthetic hormones*—Dr. J.J. Nerukar, Ramnarain Ruia College, Bombay.

13. *Synthesis and structure determination of potential anticancer steroid analogues*—Dr. Harkishan Singh, University of Saugar, Saugar.

Medicinal Plants

14. *Utilisation of the oil from* Cyperus rotundus *Linn.*—Dr. Jadugopal Dutta, Jadavpur University, Calcutta.

15. *Cytogenetics of the I.P. medicinal plants of Kashmir : A prelude to their improvements*—Dr. T.N. Khoshoo, Jammu & Kashmir University, Srinagar.

Metals

16. *New processes for zinc extraction*—Shri R. Mallikarajunan, Indian Institute of Technology, Bombay.

Biology

17. *Studies on the endocrine glands in fishes*—Dr. Har Swarup, Vikram University, Gwalior.

18. *Mechanisms of physiological adaptation in brackish and estuarine organisms*—Prof. K. Pampapathi Rao, Sri Venkateswara University, Tirupati.

19. *Genetic studies on host-virus interrelationships*—Dr. S.K. Bose, Calcutta University, Calcutta.

20. *Tests of the expectancy theory of resistance to extinction following the acquisition of conditioned response by intermittent reinforcement*—Dr. Mukul Kumar Dey, Punjab University, Chandigarh.

21. *On cauliflory in some Indian trees*—Prof. V. Puri, Meerut College, Meerut.

22. *Brain and cranial nerves of certain teleostean fishes*—Dr. B.M. Sinha, Meerut College, Meerut.

23. *Study on the mechanism of male sterility in crop plants*—Dr. S.P. Singh, B.R College, Agra.

24. *Role of nucleic acid and protein in controlling the influence of physical agencies on chromosomes*—Dr. A.K. Sharma, Department of Botany, Calcutta University, Calcutta.

25. *Flora of Srinagar District*—Dr. T N. Khoshoo, Jammu & Kashmir University, Srinagar.

Electrical & Mechanical Engineering

26. *Multifuel aspects of compression ignition engine with particular reference to the possibilities of low temperature carbonisation tars*—Profs. B. Sreenivasa Murthy & B.B. Madhava Rao, Birla Institute of Technology, Ranchi.

Civil Engineering & Hydraulics

27. *Ultimate strength of reinforced and prestressed concrete continuous beams*—Shri D.P. Sharma, M.B.M. Engineering College, Jodhpur.

28. *Analysis of rectangular plates with semi-circular ends*—Shri M.S. Gopalakrisnan, Coimbatore Institute of Technology, Coimbatore.

29 & 30. *Cheap substitute for stone grit for surface painting and overheating of bitumen and tar used on road surface*—Chief Engineer, U.P., P.W.D., Lucknow.

Public Health Engineering

31. *Limnological studies on upper and lower lakes, Bhopal*—Shri H.L. Sarkar, Delhi University, Delhi.

RESEARCH IN PROGRESS

National Laboratories

CGCRI, CALCUTTA

Development of Mica Base Greases—A process has been developed for using mica powder as a substitute (amounting almost to cent per cent replacement) for graphite in making greases. Mica base greases produced by the process conform to I.S. specifications for graphite greases and are comparable to commercial samples available in the market. In some respects, e.g. heat stability, they are even superior. The Indian Standards Institution has taken up the amendment of the I.S. specifications for graphite greases to permit the use of mica powder as an ingredient.

CFTRI, MYSORE

Calcium Caseinate—A new method for the preparation of calcium caseinate (which is at present imported) has been developed. The method consists in washing the casein in hot water, dispensing it in ammonia, adding calcium hydroxide in sucrose solution and drum-drying. The novel feature of the process is the use of calcium hydroxide in sucrose solution in place of aqueous calcium hydroxide. The product is a light fluffy powder dispersible in water to the extent of 10 per cent. The average yield is 90 per cent.

CEERI, PILANI

Silicon Diode—A high conductance silicon diode has been designed and fabricated; it has a forward current of 200 ma. at 1.35 V. with a sharp rise above 1.1 V. The backward current is low, i.e. of the order of 10 μa. at 50 V. The breakdown voltage is expected to be well over 100 V. The high frequency characteristics of the diode are being tested.

Sponsored Research

Vanadium Complex — Vanadium forms an intense blue coloured complex with sulphosalicylic acid in strong acid (sulphuric, phosphoric, perchloric) medium. The complex behaves as a reversible redox indicator; its transition potential has been studied. A spot test procedure and a colorimetric method for the identification and determination of vanadium have been developed with this complex—D. SURYANARAYANA & V. PANDU RANGA RAO, Chemical Laboratories, Andhra University, Waltair.

Ecology of Soil Fungi. In the supply of nutrients to crops soil fungi play an important part. The types of fungi and their abundance are influenced by the soil organic matter and the nature of crops.

Some fungal species are dominant on the roots of paddy plants but the type association changes with the age of the growing crop. Out of the 30 species isolated from organic matter in paddy fields of West Bengal, only eight were dominant throughout the year. Fertilisers, deep ploughing and climatic factors influenced fungal populations. Dominant types were found in the largest numbers after the first spell of rain (April-June)—A.C. DAS & (Miss) K. CHATTERJEE, Bose Institute, Calcutta.

RESEARCH PAPERS

Some measurements of the surface properties of silicon by d.c., a.c. and pulsed field effects—B.R. Marathe, NPL, New Delhi. *Proc. phys. Soc. Lond.*, **79** (1962), 503 06.

Faraday's law of induction and the force on a body due to change in its magnetization in an electric field—K.G. Ramanathan, NPL, New Delhi. *Contemporary Physics*, **3** (1962), 286-89.

On the extra reflections in electron diffraction patterns from thin evaporated films of some of the face-centred cubic metals—Kanwar Bahadur & P.V. Sastry, NPL, New Delhi. *Proc. phys. Soc. Lond.*, **78** (1961), 594-95.

A funicular shell for the conference hall of the Kanpur Municipal Corporation—G.S. Ramaswamy, N.V. Raman & Z. George. *Indian Concr. J.*, **36** (1962), 334-37.

Experimental verification of approximate transonic airfoil theory—D. Tirumalesa, NAL, Bangalore. *J., aero. Soc. India*, **14** (1962), 65.

Bright finishing of superpurity aluminium : Part I—Electropolishing—B.A. Shenoi, K.S. Indira & K. Vijayalakshmi, CECRI, Karaikudi. *Metal Finish.*, **60** (4) (1962), 44-47.

NAL, Bangalore—Dr. S.H. Zaheer, Director-General, Scientific & Industrial Research being shown a pilot 2 in. × 2 in. intermittent blowdown wind tunnel designed, assembled and tested at the Laboratory

PERSONAL

(*Contd from p. 2, col. 3*)

SHRI RAM PRASAD—Junior Technical Officer, CSIO, New Delhi (Sept. 24, 1962).

SHRI S. P. MUKHERJEE—Junior Technical Officer, CFRI, Jealgora (Oct. 15, 1962).

SHRI V. KUMAR—Personal Assistant (Tech.) to the Director, IIP, New Delhi (Aug. 22, 1962).

SHRI H. L. PANDIT—Accounts Officer, CFRI, Jealgora (Oct. 22, 1962).

* * *

SHRI R.S. MEHTA, Director, CPHERI, Nagpur returned to India on Sept. 27, 1962 after completion of his tour of U.S.A., South America, U.K., France, Italy, Germany, Switzerland, Holland, Denmark and U.S.S.R. He participated in several technical conferences and visited water and sewage treatment plants, institutions working on air pollution, radioactivity and public health aspects of housing and housing construction, and postgraduate educational institutions.

* * *

SHRI S.M.K. CHETTY, Senior Scientific Officer, CBRI, Roorkee has been awarded Ph.D. degree of the University of Southampton, U.K. for his thesis: *An investigation into linear analysis of hyperbolic paraboloid shells.*

SHRI S. RAMACHANDRA, Senior Scientific Officer, CMRS, Dhanbad has been awarded Ph.D. degree of the Indian Institute of Technology, Kharagpur for his thesis : *Hydrodynamical problem in lubrication.*

SHRI A.B. SEN, Junior Scientific Officer, CDRI, Lucknow has been awarded Ph.D. degree of the Calcutta University for his thesis : *Pharmacology due to protozoa and helminths.*

Dr. O.P. Gandhi

Dr. O.P. Gandhi has been appointed Assistant Director, CEERI, Pilani (w.e.f. Oct. 3, 1962).

Born in 1934, Shri Gandhi obtained his B.Sc. (Hons.) degree in Physics from the Delhi University and Diploma in Electrical Communication Engineering from the Indian Institute of Science, Bangalore. After working for sometime as a research scholar at the Microwave Laboratory of the Indian Institute of Science, he proceeded to U.S.A. on a Government of India scholarship and worked in the Electron Physics Laboratory, University of Michigan. Based on his studies on highpower crossed-field microwave tubes, he was awarded the D.Sc. degree in 1960. This work, supported partly by the U.S. Signal Corps, later formed a part of the book 'Crossed-Field Microwave Devices' published by the Academic Press, New York. Lately, Dr. Gandhi has been leading a research team working on Generation of Ultramicrowaves at the Scientific Laboratory of *Philco Corporation*, Philadelphia where his work was primarily on semiconductor plasmas and lasers.

Dr. Gandhi has published a number of research papers in leading American and British periodicals. He is a member of the Institute of Radio Engineers, New York and the Society of Sigma XI.

Maj. N.V.R. Iyengar

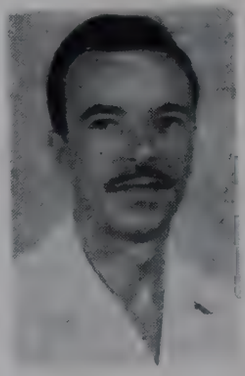
Maj. N. V. R. Iyengar, M.Sc., A.I.I.Sc., F.R.I.C., has been appointed on promotion, Assistant Director, CFTRI, Mysore (w.e.f. August 17, 1962).

After graduating from the University of Mysore in 1935, Shri Iyengar joined the Biochemistry Department of the Indian Institute of Science, Bangalore. In 1936, he was appointed Research Chemist of the Ahmedabad Municipality for work on sanitation problems. He also worked in the Health Laboratory dealing with Foods and Drugs. In 1943, he was granted a King's Commission and served as Officer Commanding Military Food Laboratories. In 1947, he was appointed Secretary of the Food Industries Planning Panel of the Government of India.

Maj. Iyengar joined the CFTRI, Mysore, in 1951, where at present he heads the Division of Packaging and Containers. He was a member of the Productivity Team on Packaging Industry, which toured besides India, Switzerland, U.S.A. and Japan in 1960.

Mr. R. Lepetit

Mr. R. Lepetit of the French Institute of Petroleum, Paris joined the Indian Institute of Petroleum (IIP) on Sept. 10, 1962. This brings the total number of experts from France assisting in the training of staff of IIP to eight.



After his education in a professional school and training in the Aviation Department of the Salmson Society, Mr. Lepetit joined the Application Division of the French Institute of Petroleum, Paris as a technician in 1950. He carried out investigations on standard and multi-cylinder engines for assessing the qualities of fuels and lubricants under standard testing conditions. His special investigations relate to the behaviour of fuels and lubricants in engines under normal running conditions. Since 1959 he has been engaged in researches on petrol and diesel engines for testing prototypes of engines.

PATENTS & PROCESSES

Patent Filed

84670 : *Improvements in or relating to electrolytic cells*—N. Dhananjayan, H.K. Chakrabarti, T. Banerjee & R.C. Verma, NML, Jamshedpur.

Patents Sealed

71702 : *A process for decolourisation of glass*—Atma Ram, S. K. Gupta & S. N. Prasad, CGCRI, Calcutta.

71864 : *Improvements in or relating to the production of alpha-halotoluenes*—S.H. Zaheer, Baldev Singh, Bharat Bhushan, S.I. Ahmed, I.K. Kacker, V. Krishnamoorthy & M.Z. Ahmed, RRL, Hyderabad.

72851 : *A modified process for preferential separation of the non-fatty constituents and simultaneous purification of the seed lipids*—Y.C. Awasthi, C. Mitra & K.N. Kaul, NBG, Lucknow.

72869 : *Preparation of fatty acids*—C.C. Nihan, S.R. Rao, & S.H. Zaheer, RRL, Hyderabad.

PAKISTAN

111715 : *Improvements in or relating to the manufacture of phenylacetic acid*—S. H. Zaheer, Baldev Singh, Bharat Bhushan, S.I. Ahmed, I.K. Kacker, V. Krishnamoorthy & M.Z. Ahmed, RRL, Hyderabad.

Process leased out

A process for the manufacture of garlic powder (Patent No. 65138) developed by the Central Food Technological Research Institute, Mysore has been leased out for commercial exploitation to *Gargin & Pepeard Private Ltd.*

Printed and published by Shri B.N. Sastri, Council of Scientific & Industrial Research, New Delhi at Asia Press, Delhi-6

CSIR NEWS

VOL. 12 NEW DELHI—NOV. 26, 1962 : AGRAHAYANA 5, 1884 No. 22

LIBRARY

Technological Conference

The fourth Technological Conference jointly organised by ATIRA, BTRA and SITRA will be held at ATIRA, Ahmedabad from Dec. 3 to 5, 1962. The conference will be inaugurated by Shri Bharat Ram, President of the Indian Cotton Mills Federation and Chairman of the Board of Directors of the Delhi Cloth and General Mills Co. Ltd.

Twenty three papers relating to mechanical processing, textile physics, physical testing and chemistry will be read and discussed at the conference.

Hony Adviser to DGSIR

Maj. Gen. S.S. Sokhey has been appointed Honorary Adviser to the Director-General, Scientific & Industrial Research with effect from Nov. 21, 1962 for assisting him in the preparation of plans for the proposed National Biological Research Laboratory.

P E R S O N A L

DR. R. K. N. IYENGAR, Deputy Director, CRRI, New Delhi performed the duties of Director in addition to his own during deputation abroad of Prof. S. R. Mehra from Oct. 22 to Nov. 7, 1962.

Transfers

SHRI P.K. GOKHALE, Administrative Officer, Genetics & Biometry Research Unit, Calcutta—Administrative Officer, CECRI, Karaikudi (Oct. 12, 1962).

SHRI S.K. BANERJEE, Section Officer, CFRI, Jealgora—Section Officer, BITM, Calcutta (Nov. 14, 1962).

* * *

PROF. S. R. MEHRA, Director, CRRI, New Delhi undertook a tour of Europe (Oct. 22 - Nov. 7, 1962). He attended the meetings of the Commitee on Low Cost Roads of the Permanent International Association of Roads Congresses at Paris and visited several research laboratories and field stations in France and U. K.

PROF. G. S. RAMASWAMY, Deputy Director, CBRI, Roorkee who was on a visit to U.S.A. at the invitation of the National Academy of Sciences, U.S.A. to act as one of the Chairmen of the World Conference on Thin Shells held at San Francisco in the first week of October 1962, returned to India on Oct. 29, 1962. He delivered lectures at the Universities of Washington, California and Southern California, Illinois, Missouri and Rice and the California Institute of Technology. While in U.S.A., Prof. Ramaswamy made a study of the current trends in technical education and scientific research and the impact of the electronic digital computer on these fields.

SHRI A. RAHMAN, Assistant Director, CFTRI, Mysore returned to India on Oct. 1, 1962 after attending the Tenth International Congress of History of Science, Ithaca (U. S. A.), the Fifth Internate Food Congress, New York and the First International Congress of Food Science and Technology, London. While in U. K., Shri Rahman acquainted himself with the organisation of technical information services in various institutions, and visited some leading food manufacturing industries.

MR. Y. L. GLADEL, French expert and DR. I. B. GULATI, Senior Scientific Officer : Grade I, IIP, New Delhi attended the symposium on the Development of Petroleum Resources of Asia and Far East held at Tehran during Sept. 1-15, 1962.

SHRI K. G. S. JAIN, Junior Scientific Officer, CBRI, Roorkee returned from U.K. on Oct. 15, 1962 after the completion of his training in foundation engineering. He attended the annual colloquium of the International Society of Rock Mechanics held at Salzburg (Austria) during Oct. 4 - 6, 1962.

SHRI CHANAN SINGH, Senior Scientific Assistant, CDRI, Lucknow returned to India after completion of his three-year training in U.S.S.R.

(Contd on p. 4, col. 1)

NBG, LUCKNOW—Dr. S. Husain Zaheer, DGSIR, being shown Gymnosperms during his visit on Nov. 11, 1962

BRIEFS

Journal of Scientific & Industrial Research

The *Journal of Scientific & Industrial Research* which has hitherto been published in four sections will be issued from January 1963 as five different periodicals.

The new *Journal of Scientific & Industrial Research* (Monthly) will carry the features included in Section A—General of the present journal. The *Indian Journal of Pure & Applied Physics* (Monthly) will include original research communications in all branches of physics which were covered in Section B—Physical Sciences. The *Indian Journal of Chemistry* (Monthly) will cover original research communications in all branches of chemistry which were previously included in Section B—Physical Sciences; it will also include research papers in biochemistry which were previously covered in Section C—Biological Sciences. The *Indian Journal of Technology* (Monthly) will be devoted to the publication of original research communications in applied sciences and technology, replacing Section D—Technology. The *Indian Journal of Experimental Biology* (Quarterly) will include original research papers of an experimental and analytical nature in the field of biology and will largely replace Section C—Biological Sciences.

Burmah-Shell Research Fellowships

The following have been selected for the award of Burmah-Shell Research Fellowships :

Sarvashri M. R. Madhav (Soil Mechanics & Foundation Engineering), M. Poddar (Geological Inhomogeneities), M. C. Dwivedi (Chemical Engineering), S. K. Mukerji (Electrical Engineering), T. S. Jayadevaiah (Electrical Engineering) and G. K. Agrawal (Aeronautical Engineering).

CFTRI, Mysore

The Central Food Technological Research Institute, Mysore has undertaken to guide the nutrition clinic opened at the K.R. Hospital, Mysore on Nov. 7, 1962. The clinic is intended to diagnose diseases resulting from protein, mineral and vitamin deficiencies.

Reservists for Army

The following members of staff of CSIR Secretariat who have been called as reservists for emergency service by the Ministry of Defence, have been relieved of their duties : Sarvashri K.B. Kochhar, UDC (Nov. 23, 1962), Bhuwan Singh, Security Guard (Nov. 24, 1962) and Jagannath, Peon (Nov. 6, 1962).

Research Fellowships

The following have been awarded Fellowships in schemes noted against their names.

Senior Fellows

SHRI M.L. HAKOO—*Production of improved varieties of medicinal plants* (Regional Research Laboratory, Jammu).

DR. B.J. ROY GHATAK—*Pharmacological investigations of Indian medicinal plants* (Regional Research Laboratory, Jammu).

Junior Fellows

SHRI S. SEETHARAMA—*Studies in histology, histo-chemistry and physiology of saccus.* (Delhi University, Delhi).

SHRI ARCHANA BHOSE—*Studies in certain aspects of cholesterol* (University College of Science & Technology, Calcutta).

NEW PUBLICATIONS

1. *Pollen Grains of Indian Plants—IV—Leguminosae-Part I. Bull. No. 65, 1962, NBG, Lucknow*—Describes the pollen grains of the Indian species of the sub-families Caesalpinioideae and Mimoseae of the family Leguminosae and gives keys to their identification.

2. *Ferns of India, No. 5—Hemionites; Bull. No. 67, 1962, NBG, Lucknow*—Gives a detailed morphological and anatomical description of the only Indian species, *H. arifolia.*

3. *Studies in Angiospermic Parasites. No. 1; Bull. No. 69, 1962, NBG, Lucknow*—Describes the taxonomy, life-history, external and floral morphology of *Dendrophthoe falcata* (L.F.) Ettingsh. (banda), one of the deadliest angiospermic parasites causing extensive damage to fruit, timber and flowering plants.

4. *Algae of India—2, Vaucheriaceae, No. 2; Bull, No. 70, 1962, NBG, Lucknow*—Gives botanical descriptions of all the Indian species of the genera, *Dichotomosiphon* and *Vaucheria.*

5. *Bibliography on Pile Foundations (Annotated), CBRI, Roorkee*—Includes in 26 pages 165 references covering the period 1951-60.

6. *International Indian Ocean Expedition—Indian Scientific Programmes 1962-65*—Published by the Indian National Committee of Oceanic Research, CSIR, New Delhi (46 pp).

NML, JAMSHEDPUR—Shri J.J. Ghandy, Chairman, Executive Council, watching flotation of limestone in progress at the integrated heavy pilot plant for beneficiation of ores.

RESEARCH IN PROGRESS

National Laboratories

CEERI, PILANI

Transistorised Power Supply—A transistorized instrument which can conveniently be used as a constant voltage or constant current source has been developed. When used as constant voltage source, its output voltage can be continuously varied from 3 to 24 V. in two ranges. The maximum current which can safely be drawn through it is 1 amp. and the output impedance is 0.1 ohm. The output voltage variation is within $\pm$0.5 per cent for a line voltage of $\pm$ 10 per cent. When used as a constant current source, it can deliver any predetermined value of current from 100 to 500 ma. into a load of 0 to 10 ohm. The variation of current in the load is negligible if line voltage changes by $\pm$ 10 per cent.

CSMCRI, BHAVNAGAR

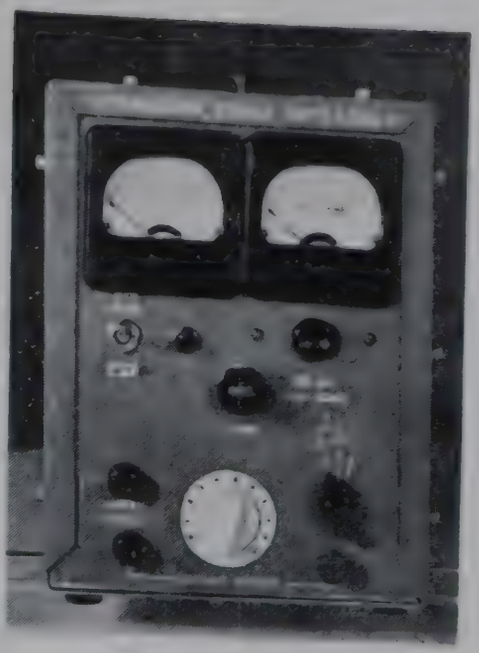
Alginic Acid from Brown Seaweeds—Fifteen species of *Sargassum* collected from Saurashtra coast have been analysed for their alginic acid content. *Sargassum cinnereum*, J. Ag. var., *berberifolium*, Grun from Dwarka contained maximum percentage of alginic acid (29% on dry basis).

A method for the extraction of alginic acid from these seaweeds has also been developed. It consists in extracting the seaweeds with sodium carbonate, bleaching the extract with sodium hypochlorite and precipitating the acid at *p*H 2-3 using 1 *N* hydrochloric acid.

The product is superior to the imported material in regard to its colour, purity and viscosity of its solutions.

Sponsored Research

Effect of Antibiotics and Sulfa Drugs on Carbohydrate Metabolism—Antibiotics and sulpha drugs are widely used in the treatment of infectious diseases. They are often used indiscriminately, though their metabolic effects have not been studied in detail. The project was undertaken to study the metabolic effect of administration of tetracyclines, chloramphenicol, pencillin and dihydrostreptomycin on carbohydrate and lipid metabolism in rabbits and rats and the effects of tolbutamide in normal and diabetic rhesus monkeys.



CEERI, Pilani—Transistorised power supply unit fabricated at the Institute

Utilization of glucose was lowered by prolonged administration of penicillin, dihydrostreptomycin, terramycin and aureomycin but not by achromycin and chloramphenicol. Tissue concentrations of cholesterol and phospholipids increased after prolonged administration of penicillin, dihydrostreptomycin, terramycin and achromycin. No such changes could be observed after treatment with aureomycin. The defective utilization of glucose after aureomycin treatment returned to normal after the administration of the drug was stopped for one week. Of the antibiotics studied, aureomycin had least effects on carbohydrate and lipid metabolism.

In normal monkeys, tolbutamide produced a fall in blood level of glucose and inorganic phosphorus, similar to that due to administration of insulin. When the dose of the drug was increased, it produced hyperglycemia. In alloxan-diabetic monkeys, the drug neither lowered the blood glucose and blood inorganic phosphorus, nor decreased the glycosuria and ketonuria. When the drug was administered with small doses of insulin, ketonuria diminished but there was no change in the blood sugar levels.

Increase in the true glucose level of blood after the administration of fructose, observed in alloxan diabetic monkeys, was partly counteracted by the administration of the drug—S. Banerjee, K.P. Chattarjee, P.K. Ghosh & (Mrs) Adarsh M. Kumar, Bikaner Medical College, Bikaner.

Anatomical Studies in the Indian Dipterocarpaceae—Foliar vascularization and histology in the Indian representatives of the Dipterocarpaceae have been studied. The study shows that there is a remarkable homogeneity underlying the general features. The taxa show a stereotyped vascular pattern but no obvious trends of evolutionary modifications. Perhaps, the only variable features are concerned with minor anatomical details like the thickness of the veins. A significant variation in the structural and histological features was observed. This could be considered only as forming an important set of characters in the diagnosis of taxa. These minor variations are concerned with the presence of terminal sclereids in association with the vein endings; the nature of the their pitting; the presence of vein extensions (the case of *Shorea* is remarkable); presence of resin canals in the minor vein systems; presence of crystals (all the studied taxa do not possess this feature; a few of them show druses); pubescence and peltate glands. The stomata are uniformly rubiaceous; however, there is a difference in the density of distribution—B.G.L. Swamy & N. Parameswaran, Presidency College, Madras.

Research Papers

Bright finishing of superpurity aluminium : Part II—Anodising—B.A. Shenoi, K.S. Indira & K. Vijayalakshmi, CECRI, Karaikudi. *Metal Finish.*, **60** (5) (1962), 49-53.

Buffer characteristics of manganous sulphate and ammonium sulphate electrodeposition of baths—B.V.K.S.R.A. Tilak, S.R. Rajagopalan & A.K.N. Reddy, CECRI, Karaikudi. *Trans. Faraday Soc.*, **58** (1962), 795-804.

Preliminary results of superimposition of a.c. on d.c. in the anodic oxidation of lead in sulphuric acid—R. Vijayavalli, S. Ghosh & H.V.K. Udupa, CECRI, Karaikudi. *Bull. Acad. Pol. Sci. chim.*, **10** (1962), 13-17.

PERSONAL

(Contd. from page 1, col. 3)

DR. S. P. POPLI, Senior Scientific Officer : Grade II, CDRI, Lucknow, has been deputed for post-doctoral training in synthetic organic chemistry for a period of one year in U.K, under the Colombo Plan.

DR. V. SUBRAHMANYAN, Director, CFTRI, Mysore has been renominated member of the reconstituted Soil Science Committee and Animal Nutrition Committee of the Indian Council of Agricultural Research (ICAR).

DR. B. MUKERJI, CDRI, Lucknow (or his nominee) has been nominated member of the reconstituted Animal Diseases & Pests Committee of ICAR.

DR. B. R. NIJHAWAN, Director and SHRI PRAKASH NARAIN, Senior Scientific Officer, NML, Jamshedpur have been nominated principal and alternate members of the Varnishing & Allied Finishes Sectional Committee of the Indian Standards Institution (ISI).

DR. R. S. MEHTA, Director, CPHERI, Nagpur has been nominated member of the Committee of the Bombay Municipal Corporation to investigate and advise on questions of future reservations and development of water resources for Greater Bombay.

DR. K. N. MATHUR, Director, CSIO, New Delhi and SHRI S. P. VENKITESHWARAN, Assistant Director, NAL, Bangalore have been nominated members of the reconstituted Development Council for Bicycles, Sewing Machines & Instruments of the Ministry of Commerce and Industry.

DR. Y. NAYUDAMMA, Director and DR. S.K. BARAT, CLRI, Madras have been renominated principal and alternate members respectively of the reconstituted Veterinary, Parasitology and Zoology Committee of ICAR. Dr. Nayudamma (or his representative) has also been nominated member of the Industries Advisory Board of the Government of Madhya Pradesh.

DR. G.S. SIDHU, Assistant Director and SHRI BHARAT BHUSAN, Senior Scientific Officer : Grade I, RRL, Hyderabad have been nominated principal and alternate members of the Methods of Test Sub-Committee, ISI.

SHRI PREM PARKASH, Assistant Director, NPL, New Delhi has been nominated member of (i) Committee on the Training of Inspectors of Weights and Measures of the Ministry of Commerce & Industry, New Delhi ; and (ii) Panel for Bulk Milk Measures and of the Research Panel for Ball and Roller Bearing Sectional Committee of ISI.

DR. N. RAMANATHAN, Assistant Director, CLRI, Madras has been nominated a member of the Advisory Committee of ISI.

DR. D.S. BHATIA, Assistant Director and SHRI C.P. NATARAJAN, Senior Scientific Officer, CFTRI, Mysore have been nominated principal and alternate members respectively of the Expert Committee to examine the Standards for Chicory under the Prevention of Food Adulteration Rules.

The news item relating to Shri A.B. Sen, Junior Scientific Officer, CDRI, Lucknow (*CSIR NEWS*, Vol. 12, No. 21, p.6) should read as: Awarded Ph. D. degree of the Calcutta University for his thesis : *Pharmacology and chemotherapy of infections due to Protozoa and Helminthes.*

Dr D. S. Datar

DR. D.S. DATAR, Assistant Director, RRL, Hyderabad has been promoted Deputy Director-in-charge with effect from Oct. 30, 1962 and has subsequently been transferred as Deputy Director-in-charge, CSMCRI, Bhavnagar.

Born in Hyderabad, Shri Datar had his early education at Hyderabad and Poona and obtained his M.Sc. degree in Chemistry from the Osmania University and his Ph. D. degree in Inorganic Chemistry from the Bombay University in 1942. He joined D.A.V. College, Sholapur, as Head of the Department of Chemistry in 1942. Subsequently Dr. Datar joined the Central Laboratories for Scientific & Industrial Research, Hyderabad (taken over by CSIR in 1956) as Scientific Officer. He was promoted as Assistant Director in 1954.

DR. DATAR has carried out investigations in heavy chemicals, fertilizers, ceramics, X-rays, and physical chemistry. He has published over 93 research papers and has 23 patents to his credit. He is a member of the *Indian Institute of Chemical Engineers.*

Dr. G. J. Mohanrao

DR. G.J. Mohanrao has been appointed Assistant Director, CPHERI, Nagpur (w. e. f Oct. 22, 1962).

Born at Guntur (Andhra Pradesh) in 1930, Shri Mohanrao obtained his B.Sc. (Hons) and M.Sc. degrees in Chemical technology from Andhra University in 1950 and 1951 respectively. He carried out research at the Department of Biochemistry, Indian Institute of Science, Bangalore till 1954 for the Ph.D. degree of the Bombay University. After working as a Chemist in the Delhi Joint Water and Sewage Board for two years, he proceeded to U.S.A. for higher studies under a Fulbright Fellowship and worked as a Research Assistant at the Massachusetts Institute of Technology and obtained his Sc.D. degree in Sanitary Engineering in 1959. Since then he has been a Research Fellow at the California Institute of Technology, engaged in research on the behaviour of radio-isotopes in sea water and sewage. His services were loaned for some time to the Scripps Institution of Oceanography, University of California.

DR. Mohanrao has published over twenty research papers.

PATENTS & PROCESSES

Patent Filed

82822: *Process for the manufacture of high alpha cellulose dissolving grade pulps by alkaline pulping methods*—G.M. Vyas, D.S. Bendale & M.B. Mahajan, NCL, Poona (Also filed in Italy, 27384 and Canada, 858476)

Patents Accepted

73576: *A simple specific gravity indicator for use in heavy medium coal washing*—A.K. Chakravarti, A.G. Saha, P. Chatterjee, G.G. Sarkar & A. Lahiri, CFRI, Jealgora.

76415: *Improvements in or relating to the modification of aluminium base alloys containing silicon*—S.S. Bhatnagar, P.K. Gupte, B.R. Nijhawan & G.G. Nair, NML, Jamshedpur.

75407 : *Improvements on patent No. 55816 relating to the process of desulphurising industrial gases*—S. C. Varshney, S. C. Ghosh, S. Banerjee, N. G. Basak & A. Lahiri, CFRI, Jealgora.

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CSIR NEWS

VOL. 12 NEW DELHI—DEC. 10, 1962 : AGRAHAYANA 19, 1884 No. 23

Bhatnagar Award

The Governing Body of CSIR at its meeting held on Nov. 3, 1962 decided that four prizes of Rs. 10,000 each may be given annually as Shanti Swarup Bhatnagar Memorial Award for Scientific Research in the disciplines of physical, chemical, biological and medical sciences or engineering. Effective from 1960, the award for the last two subjects will be given in alternate years.

The Governing Body further decided that while normally the recipients of the awards should be below the age of forty-five years, in disciplines like medicine or engineering, the upper age may be relaxed up to fifty-five years.

Cross-country Gas Grid Committee

The committee which was appointed to consider the proposal for the establishment of a cross-country gas grid for the supply of fuel gas has been re-constituted with the Minister for Mines & Fuel as Chairman. The members of the committee are : Shri K.R. Damle, Secretary, Ministry of Mines & Fuel, New Delhi; Dr. S. Husain Zaheer, Director-General, Scientific & Industrial Research, New Delhi; Dr. A. Lahiri, Director, CFRI, Jealgora; Dr. J.W. Whitaker, Director, IIP, Dehra Dun; Shri Pitambar Pant, Chief, Perspective Planning Division, Planning Commission, New Delhi; Director, Indian Bureau of Mines, Nagpur; a representative of the Oil & Natural Gas Commission; and Shri K.G. Krishnamurthi, Technical Secretary to Director-General, Scientific & Industrial Research.

Publications Committee

The Publications Committee of CSIR consisting of the Editorial Committee of the Dictionary of Economic Products (*Wealth of India*) and the Editorial Board of the *Journal of Scientific & Industrial Research* has been reconstituted for a period of three years with effect from April 1, 1962. The following are the members of the reconstituted Committee :

Editorial Committee of the Dictionary of Economic Products (Wealth of India) : Dr. S. Husain Zaheer, Director-General, CSIR (Chairman); Lala Shri Ram; Father H. Santapau; Dr. B.R. Seshachar; Director, Geological Survey of India (Dr. B.C. Roy); Dr. M.S. Krishnan; Dr. M. B. Raizada; Dr. T.R. Seshadri; Dr. V.B. Chipalkatti (Members); Shri B.N. Sastri (Secretary).

Editorial Board of the Journal of Scientific & Industrial Research. Director-General, CSIR (Chairman), Dr. Vikram A. Sarabhai, Dr. K. Venkataraman, Dr. S.R. Palit, Prof. P. Maheshwari, Prof. B.R. Seshachar, Dr. M.S. Krishnan, Prof. N.R. Kuloor, Shri A. Krishnamurthi (Members), and Shri B.N. Sastri (Secretary).

PERSONAL

SHRI A. RAHMAN, Assistant Director, CFTRI, Mysore has been transferred as Assistant Director, History of Science Unit, Publication Directorate, New Delhi.

Appointments

SHRI BALDEV SINGH, Senior Scientific Officer : Grade I, RRL, Hyderabad has taken over charge as Industrial Liaison & Extension Officer, CSIR, New Delhi with effect from Dec. 5, 1962.

SHRI R. JAYARAMAN—Senior Scientific Officer : Grade I, Indian Ocean Expedition, New Delhi (Oct. 11, 1962).

SHRI M. KRISHNA MENON—Senior Scientific Officer : Grade I, Indian Ocean Expedition-Indian Ocean Biological Centre-(Oct. 26, 1962).

SHRI T.N. KAUL—Senior Scientific Officer : Grade II, RRL Jammu (Nov. 26, 1962).

SHRI D.K. SHASTRI—Senior Scientific Officer : Grade II, CMRS, Dhanbad (Nov. 1, 1962).

SHRI GOVINDJI KHERA—Junior Scientific Officer, IIP, New Delhi (Nov. 1, 1962).

Promotions

DRS. D.N. NANDI & P.K. SAHA—Senior Scientific Officers : Grade I, CGCRI, Calcutta (Sept. 10, 1962).

SARVASHRI U.N. Nayak, R. K. GUPTA & DR. B.C. SINHA—Senior Scientific Officers : Grade II,CGCRI, Calcutta (Sept. 10, 1962).

SARVASHRI S. C. MAZUMDER & N.B. CHATTERJEE—Senior Scientific Officers : Grade II, CGCRI, Calcutta (Sept. 29 & Oct. 15, 1962 respectively).

Resignation

SHRI R.S. KAPIL—Junior Scientific Officer, CDRI, Lucknow (Nov. 24, 1962).

* * *

DR. J.W. WHITAKER, Director, IIP proceeded on leave to U.K. for a period of about 2½ months w.e.f. Nov. 14, 1962.

DR. B. MUKHERJI, Director, CDRI, Lucknow ; PROF. K.N. KAUL, Director, NBG, Lucknow ; SHRI P. M. NABAR, Officer-in-charge, CIMPO, New Delhi ; and DR. I.C. CHOPRA, Deputy Director, RRL, Jammu have been nominated members of the Medicinal Plants Committee of the Indian Council of Agricultural Research.

Dr. N. K. PANIKKAR, Director, Indian Programme of International Indian Ocean Expedition, New Delhi has been nominated member of Fish & Fish Products Sectional Committee of the Indian Standards Institution (ISI).

(*Contd on p. 4, col. 1*)

CLRI Demonstration

Rapid tannage of hides and skins by a process developed by the Central Leather Research Institute, Madras will be demonstrated at the Institute for the benefit of tanners and leather manufactures from Dec. 13 to 26, 1962

INTERNATIONAL QUIET SUN YEAR INDIAN PROGRAMME

The Indian programme of the International Quiet Sun Year scheduled to start in January 1964 has been finalized and is given in the *IQSY News Letter* No. 2 issued by the Indian National Committee for IQSY (*CSIR News*, Vol. 12, No. 19, p. 1). The programme includes the fields of meteorology, aurora and airglow, solar activity, geomagnetism, ionosphere and cosmic rays.

Meteorology (linked with the International Indian Ocean Expedition Programme) will include high level balloon ascents for temperature and wind measurements up to 10 mb., recording and analysing of atmospherics on 27kc/s., total ozone and umkehr measurements, ozonesonde ascents, setting up of stations for measuring net radiation-flux, and arranging of meteorological rocket soundings on Regular World Days and Special Geophysical Intervals.

Geomagnetism : A land magnetic survey including observations in neighbouring islands will be undertaken. Observations on board an Indian vessel will be undertaken depending on availability of suitable instruments. A magnetic observatory will be set up at Dehra Dun and new observatories at Shillong and Port Blair. Quick-run magnetograms will be taken at four existing magnetic observatories at Alibag, Kodaikanal, Trivandrum and Annamalainagar on Regular and Special World Days. Recordings of earth current and geomagnetic micropulsations will be started at Hyderabad and Ahmedabad respectively. Rocket soundings will be made near the magnetic equator in connection with electrojet studies.

Airglow : Night airglow studies of 5577, 6300, 5893A° and OH bands will be carried out at Kodaikanal, Mt Abu, Nainital, Gulmarg and Poona, and twilight studies at Ahmedabad and Poona.

Ionosphere : Besides maintaining the existing eight ionospheric vertical sounding stations and starting new automatic recording stations, the programme will include working out of true height profiles on selected days from the records ; ionospheric drift measurements at Ahmedabad, Trivandrum, Waltair and Delhi ; ionospheric absorption measurements at Ahmedabad, Delhi, Calcutta and Kodaikanal ; Faraday rotation scintillations and perhaps also Doppler shifts, from beacon satellite transmissions at Delhi and Ahmedabad, and meteor echo studies at Waltair.

Solar Activity : Solar optical patrol and other optical studies at Kodaikanal ; solar radio noise studies at Kodaikanal, Ahmedabad, Calcutta and Delhi; studies on solar radiation from satellites at Ahmedabad and Delhi and γ rays from balloons will be carried out.

Cosmic Rays : Balloona studies will be carried out on fluxes of protons, α rays, heavy nuclei, X-rays and γ rays with emulsions, scintillators, etc. Meson and neutron recording stations will be set up at Ahmedabad, Kodaikanal, Trivandrum and Gulmarg for time variation studies, and a high neutron-count monitor at Ahmedabad. Energy spectra of protons, α rays and heavy nuclei will be studied by simultaneous balloon ascents at low and high latitude stations.

Space Research : Studies will be carried out at satellite tracking stations at Nainital, Ahmedabad and New Delhi.

Aeronomy : Rocket soundings near magnetic equator will be made with sodium vapour release. Telemetry of satellite transmissions and facilities of the projected equatorial rocket launching station near Trivandrum will be used as far as possible.

The participants in the Indian programme include All India Radio, New Delhi ; Andhra University, Waltair ; Bose Institute, Calcutta ; Geodetic & Research Branch, Survey of India, Dehra Dun ; India Meteorological Department, New Delhi ; National Physical Laboratory, New Delhi ; Physical Research Laboratory, Ahmedabad ; Poona University ; Tata Institute of Fundamental Research, Bombay and Uttar Pradesh State Observatory, Nainital.

B R I E F S

The following research schemes have been transferred from the Panjab University to the Gorakhpur University consequent on Dr. R.P. Rastogy being appointed as Professor, Department of Chemistry, Gorakhpur University : (i) Thermodynamic properties of mixtures, and (ii) chemical reaction during flow through rocket nozzle.

Dr. G.C. Chatterjee, Lecturer in Biochemistry, Calcutta University has been appointed joint investigator for the CSIR Scheme: *Cell Metabolism Unit*.

Refinishing of Skins & Hides Course at CLRI

A 70-day course on refinishing of skins and hides at village tanneries conducted by the Central Leather Research Institute, Madras for the benefit of trainees deputed by the Khadi & Village Industries Commission concluded on Nov. 9, 1962. Sixteen trainees participated in the course.

The course consisted of lectures and demonstrations pertaining to processes of retanning of bagtanned buffalo for sole leather, bagtanned cow for football, hockeyball and cricketball leathers and chrome tanned upper leather and improved bag-tanning of leathers, dressing of E.I. Kips for side leather, and finishing of vegetable tanned goat skin into coloured lining leathers.

Prof. Kabir visits CLRI

Prof. Humayun Kabir, Minister for Scientific Research & Cultural Affairs and Vice-President, CSIR, visited the Central Leather Research Institute, Madras on Dec. 4, 1962. He was taken round the Institute by Dr. Y. Nayudamma, the Director. He evinced special interest in the research projects on production of various types of leathers (waterproof sole, orthopaedic, chamois, clothing, gloving) useful for defence purposes. Addressing the staff, Prof. Kabir expressed his happiness on seeing new developments in the Institute every time he visited it. He exhorted the members of the staff to continue their useful work of developing the industrial potential of the country.

Research Fellowships

The following have been awarded CSIR Junior Fellowships for research in schemes noted against their names :

Shri A.K. Dhar—*Large scale production of mycobacillin* (University College of Science & Technology, Calcutta).

Shri C.R. Lakshmana Rao—*Sea wave reactions and wave refraction* (Andhra University, Waltair).

Shri A. Thattay—*Optical studies on etched surfaces of crystals metal alloys* (M.S. University of Baroda, Baroda).

Shri K.K. Khullar—*An approach to the total synthesis of the alkaloid chaksine* (Panjab University, Chandigarh).

RESEARCH IN PROGRESS

National Laboratories

CFTRI, MYSORE

Storage of Ripe Areca Fruits—Laboratory experiments have shown that ripe areca fruits can be preserved in good condition by steeping them in 0.5 per cent sodium metabisulphite solution. This method of preservative steeping storage was tried under field conditions in an estate near Calicut. Metabisulphite was added periodically to the fruits in order to compensate for the greater loss of sulphur dioxide, water vapour and mild yeast infection resulting from severe summer conditions. The storage was continued for 4 months at the end of which the fruits were analysed and evaluated. The analyses confirm earlier laboratory studies that the chemical composition of the stored fruits is the same as that of the fresh fruits. The organoleptic evaluation in a regular market was very satisfactory. The fruits were rated as good as fresh ones and were sold at the same price as fresh ones during off-season. The method as standardized for household and small lot storage using glazed earthenwere jars as containers was also demonstrated at the Central Arecanut Research Station, Vittal.

CEERI, PILANI

Germanium Computer Diode — A small area, high frequency germanium junction type diode has been fabricated and tested. One typical diode gives a peak current of 95 ma. at 0.6 V. in the forward direction and a small leakage current with 12 V. breakdown in the backward direction. Tests show that the diode works well up to a frequency of 7o Mc/s. The electrical characteristics of the diode make it specially suitable for computer applications.

Sponsored Research

Decomposition of Alcohols on Chromia Catalysts—Decomposition of ethyl, isopropyl and *tert*-butyl alcohols over chromia catalysts, both as such and impregnated with oxides of altervalent ions, e.g. sodium and aluminium, has been studied with a view to investigating the nature of the active centres, catalyst selectivity and the mechanism of dehydration and dehydrogenation. Sodium oxide enhanced dehydrogenation and suppressed dehydration to a greater extent while alumina had the reverse effect. Selective poisoning of the catalyst in respect of dehydration and dehydrogenation by sodium and aluminium oxides respectively shows the presence of two different kinds of sites for the two reactions. Dehydration is caused by the surface hydroxyl groups in chromia, which are increased by the addition of alumina, but poisoned by sodium oxide which replaces the hydrogen of the hydroxyl groups. Thus, dehydration comprises the exchange of protons between the catalyst and the alcohol molecule, involving carbonium ion. Dehydrogenation on the other hand is caused by transfer of electrons. Sodium facilitates the electron transfer while aluminium affects it adversely—M.C. Upreti & M.V.C. Sastri, Indian Institute of Technology, Madras.

Kinetics of Oxidation by Persulphate Ion—A study of salt effect at low ionic strength on the reaction between thiosulphate and persulphate ions, both uncatalysed and copper catalysed, has been made. The reaction is found to change its order under different conditions. The salt effect for the uncatalysed as well as the copper catalysed reactions is positive and of the primary linear type, thereby showing that the rate determining process in the reaction is between a charged ion and a neutral molecule.

A kinetic study of the silver catalysed oxidation of oxalic acid and oxalate ion by persulphate ion has also been made with particular reference to salt effect. It has been found that in both cases the salt effect is negative and of the primary exponential type. The extent of this negative salt effect in the two cases is of the same order, indicating that the rate determining stage in the two reactions is of the same nature.

A new method for the estimation of persulphate ion on the basis of its reaction with thiosulphate ion has been worked out—C.D. Bisht, S.P. Srivastava & O.N. Perti, D.S.B. Government College, Nainital.

Interaction of Metals and their Hydrous Oxide Sols with Proteins—The results of potentiometric studies on the interaction of various metals and their hydrous oxide sols with gelatine show that aluminium, chromium, nickel, cobalt and silver ions are available for binding with gelatine. From the shifts in *p*H of the sols and that of the electrolyte when gelatine is replaced by caustic soda of the same *p*H, the relative tendency of binding of the metal ions with gelatine has been evaluated. The binding follows the order, silver > nickel > cobalt. Viscosity measurements under identical conditions also lead to the same conclusion.

Interaction of nickel, cobalt, silver, chromium, iron, aluminium and their hydrous oxide sols with transfusion gelatine and casein has also been studied by polarographic and viscometric methods. The results show that these metals combine with casein—Salahuddin & W.U. Malik, Muslim University, Aligarh.

Research Papers

L.C. Jain & S.C. Bahuguna (CBRI, Roorkee), Drying of modular bricks, *J. nat. Build. Org.*, **7** (1)(1962), 25-32

Mohan Rai & S. K. Chopra (CBRI, Roorkee)—Problems in the manufacture and use of dolomitic lime, *J. nat. Build. Org.*, **7** (2)(1962), 16-21.

H.V. Mirchandani (CBRI, Roorkee)—Work study in civil engineering studies on brick walls, *Work Study Bull.*, **1** (2) (1962), 4-5.

N. Narasimhan & S.K. Asthana (CBRI, Roorkee)—Factory Noise, *Cement & Concr.*, **3** (3) (1962), 1-14.

S.K. Chopra (CBRI, Roorkee)—Manufacture of light-weight aggregate and their uses, *Cement & Concr.*, **3** (3) (1962), 15-25.

M.M. Shirsalkar & G.W. Kapse (CBRI, Roorkee)—Paint system for timbers, *Cement & Concr.*, **3** (3) (1962), 26-28.

Dinesh Mohan & Virendra Kumar (CBRI, Roorkee)—Bearing capacity of piles, *Cement & Concr.*, **3** (3) (1962), 42-44.

(Contd from p. 1, col. 3)

SHRI D.S. TANDON, Senior Scientific Officer, NML, Jamshedpur has been nominated member of the Metallic Finishes Sectional Committee of ISI.

SHRI K.D. SHARMA, Deputy Director & DR. S.N. PRASAD, Asst. Director, CGCRI, Calcutta have been nominated principal and alternate members respectively of Glassware Sectional Committee, ISI.

* * *

DR. J. S. AHLUWALIA, Assistant Director, IIP, who had been deputed to USSR, France and Italy returned to India on Nov. 9, 1962.

SHRI P. KUMAR, Senior Scientific Officer, RRL, Assam has been awarded Ph.D. degree of the University of Roorkee for his thesis : *Studies on Indian building stones and their engineering applications.*

DR. R. K. BHAGAVAN, Senior Scientific Officer : Grade II, CFTRI, Mysore has been awarded M. S. degree in Public Health Nutrition by the Columbia University, U.S.A.

SHRI S. MAZUMDAR, Senior Scientific Officer : Grade I, DR. R. K. SRIVASTAVA, Information & Liaison Officer, SHRI S. N. ROYE Junior Scientific Officer, and SHRI S. SEN, Senior Scientific Assistant, CFRI, Jealgora have been elected members of the *Institute for Information Scientists*, U.K.

SHRI P. L. DE, Senior Scientific Officer : Grade I and SHRI A. C. BANERJEE, Information Officer, CBRI, Roorkee, have been elected Associate Members of the *Institute of Information Scientists*, U.K.

French Experts for Petroleum Institute

Mr. G. Follain, an expert in physical analysis and Mr. P. Duhaut, an expert in thermodynamics and kinetics of the French Institute of Petroleum joined the Indian Institute of Petroleum, Camp New Delhi with effect from Oct. 22 and Nov. 7, 1962 respectively.

Mr. G. Follain is a *Licencie es Sciences Physiques* of the Faculte Catholique des sciences de Lyon and *Ingenieur Chimiste* de l'Institute de Chimie Industrial-le of the same university. After working for two years in the research department of Gas de FRANCE he joined the french Institute of Petroleum in 1958 where he has been working on the analysis of gas and petroleum products with special emphasis on vapour phase chromatography.

Mr. P. Duhaut is a *Licencie es Sciences Physiques* of the Faculte des Sciences Nancy and *Ingenieur de recherche* of Ecole Nationale Superieure de Petrade et des Moteurs. Since 1957 he has been working specially on nitric oxidation in Applied Kinetics & Thermodynamics Department of the French Institute of Petroleum.

OTHER PUBLICATIONS

P. Nilakantan & R. Varadarajan —Studies on the utilization of wind power in India, Technical Note No. TN-WP-11-62, NAL, Bangalore.

R. Ramanathan & S. Viswanath —A study of hourly wind speeds of Madras (Meenambakam) from the point of view of wind power utilization, Technical Note No. TN-PW-12-62, NAL, Bangalore.

K.N. Raju—Bending of shells of revolution stiffened along the meridians under uniformly distributed edge loads, Technical Note No. TN-SA-3-62, NAL, Bangalore.

K.P. Ramakrishnan & S. Janaradhanan—A study of the hourly wind speeds of Veraval (Gujarat) from the point of view of wind power utilization, Technical Note No. TN-WP-5-62, NAL, Bangalore.

Pool Supplement; Technical Manpewer, National Register Unit, CSIR, New Delhi.

Under-reamed pile foundation in black cotton soils—Building Digest, No. 13, CBRI, Roorkee.

List of publications (special publications and papers on building materials, soils engineering, structures, efficiency of buildings, building practice and productivity and information) published by CBRI during 1959 to 1962)—CBRI, Roorkee.

PATENTS & PROCESSES

Patents Filed

84827 : *N-Haloacyl-1:2-diphenylethylamines*—P.P. Rao, P.B. Sattur, G.S. Sidhu & S.H. Zaheer, RRL, Hyderabad.

84828 : *A process for the separation of psoralen and isopsoralen from a mixture of psoralen-isopsoralen*—R.V. Desai, S. Bhattacharji & M.L. Dhar, CDRI, Lucknow.

85172 : *Improvements in or relating to disocyanate*—R.T. Thampy & S.R. Goel, Shri Ram Institute for Industrial Research, Delhi.

Patent Accepted

76415 : *Improvements in or relating to modification of aluminium alloys containing silicon*—S.S. Bhatnagar, P.K. Gupte, B.R. Nijhawan & G.G. Nair, NML, Jamshedpur.

Patents Sealed

71818 : *Improvements in or relating to the manufacture of sodium carboxy alkyl cellulose*—V.B. Chipalkatti, K. Manivannan, H.R. Chipalkatti & A.S. Jaffal, Shri Ram Institute for Industrial Research, Delhi.

71946 : *Improvements in or relating to a process for the manufacture of ethylene chlorohydrin*—R.T. Thampy, N.R. Kuloor, (Mrs) K. Kathpalia & C.D. Anand, Shri Ram Institute for Industrial Research, Delhi.

73065 : *Improvements in or relating to the use of cashewnut shell liquid in surface coatings*—M.A. Sivasamban, B.G. Murthy, J.S. Aggarwal, P.G. Sharma (NCL) & S.H. Zaheer, RRL, Hyderabad.

73066 : *Preparation of road tar from primary tars*—B.S. Narayan Rao, R. Vaidyeswaran, D. P. Agrawal, M. Ehsan, M.G. Krishna & S.H. Zaheer, RRL, Hyderabad.

Pakistan

111480 : *A process for the production of terpineol and terpin hydrate*—S.J. Hasan, B. Bhushan & S.H. Zaheer, RRL, Hyderabad.

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CSIR NEWS

VOL. 12 NEW DELHI—DEC. 24, 1962 : PAUSA 3, 1884 No. 24

PRIME MINISTER'S ADDRESS TO SCIENTISTS' CONFERENCE

A joint conference of Directors of national laboratories and Officers of the Defence Science Organisation was held at New Delhi on Dec. 7 & 8, 1962. Prof. Humayun Kabir, Union Minister for Scientific Research & Cultural Affairs and Vice-President, CSIR, presided.

Addressing the Conference on the second day, Prime Minister, Shri Jawaharlal Nehru, exhorted scientists in national laboratories and other research institutions in the country to give particular attention in the present crisis to the work connected with defence requirements. The crisis has put us on trial, he said, and it is most important that we exert our utmost to further our production programmes.

Scientific institutions can help in intensifying the general effort to raise industrial and agricultural production also. The strength of the country, the Prime Minister stressed, lay in our ability to produce things in the country instead of depending on others. He said, "We have to concentrate on producing things as far as possible here and I believe that we are now in a much better position to do this than ever before. We have got an industrial base; if it is directed by scientific brains, we can produce anything in India".

The Conference decided to form a steering committee consisting of representatives of CSIR, the Department of Technical Development of the Ministry of Economic & Defence Coordination and the Defence Science Organisation for coordinating the work of national laboratories with the Defence Science organisation and for finding ways and means of mobilising the total scientific effort of the nation for the defence of the country.

Chandigarh—At the cornerstone laying ceremony : (front row, left to right) Sh... ...ish Bhan, Health Minister, of the Punjab Government, Dr. Husain Zaheer, ...r Partap Singh Kairon, Drs. J.A. Cuttat, Fritz Real and K.N. Mathur

Indo-Swiss Training Centre for Precision Mechanics

The cornerstone of the Indo-Swiss Training Centre for Precision Mechanics, Central Scientific Instruments Organization was laid by Dr. Fritz Real, Director, Swiss Foundation for Technical Assistance (Zurich) at Chandigarh on Dec. 5, 1962 in the presence of a distinguished gathering. Sardar Partap Singh Kairon, Chief Minister of Punjab, presided.

Dr. S. Husain Zaheer, Director-General, Scientific & Industrial Research welcomed Dr. Real and the Swiss Ambassador, Dr. J.A. Cuttat and requested the former to lay the cornerstone of the centre. Dr. K.N. Mathur, Director, CSIO proposed a vote of thanks.

The Centre will provide the skills needed for the development of scientific instruments in the country. It will conduct a three-year course in precision mechanics under the charge of Swiss instructors and a Swiss Principal, assisted by Indian staff. To begin with, thirty-five trainees will be admitted to the course. It is intended later to institute short, specialised courses of training for workers from instruments industry.

Besides providing the teaching staff, the Swiss Foundation will equip the Centre with machine tools and other workshop equipment valued over Rs. 16 lakhs. The total amount of Swiss assistance is valued at about Rs. 40 lakhs. The centre is expected to function from May or June 1963.

Foundation Day Lecture

Dr. S. Husain Zaheer, Director-General, Scientific & Industrial Research delivered the Foundation Day lecture at the Indian School of Mines, Dhanbad on Dec. 14, 1962. The subject of his address was Mining and National Development.

BRIEFS

Research on Tung Oil : U.S. Aid to NCL

The National Chemical Laboratory, Poona has been awarded a grant of Rs. 2,31,500 by the U.S. Department of Agriculture for research on industrial uses of tung oil. A five-year contract to this effect has been recently entered into between the U.S. Government, Ministry of Food and Agriculture, Government of India and the Council of Scientific & Industrial Research.

Investigations to be carried out at the Laboratory pertain to the separation of compounds resulting from heat treatment of the oil and its derivatives. New uses of tung oil are expected to result from this research.

UN aid to CSIO

The Central Scientific Instruments Organization (CSIO), Chandigarh will receive from the U.N. Special Fund, technical aid and financial assistance to the tune of Rs. 46.92 lakhs for its design and development projects. A three-year agreement on the plan of operation between CSIR and Unesco acting as the Executive Agency of the U.N. Special Fund has been entered into recently.

Under the agreement, the U.N. Special Fund will make available the services of eleven experts for a period of two to three years to train personnel in various techniques connected with the design and manufacture of scientific instruments. The Fund will also provide equipment and ten fellowships.

Reservists for Army

The following members of staff of the national laboratories who have been called to colours as reservists for emergency service by the Ministry of Defence, have been relieved of their duties :

Shri M. R. Kapoor—Senior Technical Assistant, CEERI, Pilani (Dec. 10, 1962).

Shri K. K. Sharma—Junior Laboratory Assistant, CEERI, Pilani (Nov. 29, 1962).

Shri Mal Singh—Watchman, CEERI, Pilani (Dec. 10, 1962).

Shri Deba Kumar Bhuyan—Mechanic, RRL, Assam (Nov. 20, 1962).

Shri Patiram Gurung—Security Guard, RRL, Assam (Nov. 15, 1962).

Shri S. C. Sarkar—Watchman, CGCRI, Calcutta (Dec. 12, 1962).

Helping War Effort

Prof. Humayun Kabir, Union Minister for Scientific Research & Cultural Affairs, apprised the Consultative Committee of Parliament on Scientific Research & Cultural Affairs on Dec. 10, 1962 of the steps taken by the national laboratories to meet the needs arising out of the national emergency.

Prof. Kabir said that the national laboratories are now engaged in the following types of research : General research; industrial research; and finding out local substitutes for urgently needed articles for the army. As examples, he said that research has been undertaken to evolve a special kind of leather required for shoes which protect against frost-bite, and to supply K-ration to the army. The requirements of the armed forces in the field of optical glass are being met as a result of the researches carried out at the Central Glass & Ceramic Research Institute, Calcutta.

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Dr. Atma Ram, Director, CGCRI, Calcutta, the first recipient of the Shanti Swarup Bhatnagar Gold Medal (1959) presented the medal (weighing about 93 grams) to the Prime Minister for the National Defence Fund on Dec. 8, 1962.

Electroplating

The three-month course on Electroplating organised by the Central Electrochemical Research Institute, Karaikudi concluded on Nov. 21, 1962. Seven trainees representing the following organizations received certificates : Indo-Japanese Industries Ltd, Calcutta ; Bhagat & Co., New Delhi ; Mulraj Khatau & Sons, Bombay ; Excel Process Private Ltd, Bombay ; Kanpur Films, Delhi ; Inspectorate of Armaments (Ministry of Defence), Calcutta ; and Atomic Energy Establishment, Bombay.

Revision of Scientists' Register

The December 1962 issue of the Technical Manpower Bulletin brought out by the National Register Unit, CSIR begins with an appeal by Dr. S. Husain Zaheer, Director-General, Scientific & Industrial Research to all qualified persons to extend their cooperation in the revision of the National Register of Scientific and Technical Personnel which is being undertaken by the Council of Scientific & Industrial Research. The revision has become imperative for assisting the economic development and defence needs of India.

Over 1,75,000 of our scientific and technical personnel have enrolled themselves in the current National Register. But most of the particulars of the current Register, revised at the time of the last census, will be back-dated by two years or more by the beginning of 1963.

In order to enable the mobilization and full utilization of scientific and technical talent, it is proposed to collect current information regarding all graduates and post-graduates in Science and Medicine, and degree and diploma holders in Engineering and Technology.

Necessary forms are available from the National Laboratories, Employment Exchanges, University Employment Information & Guidance Bureaus, and also from the National Register Unit, CSIR, New Delhi.

CMRS Five-Year Report

A Five-Year Report (1956-61) of the Central Mining Research Station, Dhanbad has been published.

The 58-page report presents a brief account of the scope, programme and progress of research carried out in the Divisions of Ventilation (explosion, fires & lighting), Health, Mining and Engineering. It also gives information on the scope of activities of the Station, research papers published and patents taken.

Electrochemical Research

The Central Electrochemical Research Institute, Karaikudi has brought out a brochure on the achievements of the Institute.

The 16-page brochure presents information on the aims & objects and organization of the Institute, processes handed over to industries as well as those ready for commercial exploitation, and projects which are in progress.

Research Schemes Terminated

1. *Monographic study of* Cyperus esculentus—Dr. V. Puri, Meerut College Meerut (with effect from Dec. 31, 1962).

2. *Heat transfer in trapezoidal duct*—Principal, P.S.G. College of Technology, Peelamedu (with effect from Dec. 15, 1962).

RESEARCH IN PROGRESS

National Laboratories

NML, JAMSHEDPUR

Beneficiation and Agglomerization of Low-grade Fluorspar from Rajasthan—Laboratory and pilot plant investigations have been carried out on the beneficiation of fluorspar. Fifty tons of representative low-grade, run-of-mine fluorspar from Rajasthan assaying CaF_2, 21.2; $CaCO_3$, 6.6; SiO_2, 67.1 per cent with traces of Pb, S, Zn and Ba were initially tested in batch flotation and a good concentrate of CaF_2 was produced from the sample. On the basis of batch tests, a continuous pilot plant run was undertaken and two concentrates, one containing 97.3 per cent CaF_2 and suitable for hydrofluoric acid manufacture and the other containing 83.1 per cent CaF_2 and suitable for metallurgical use, were obtained. The total recovery in both products was 79.5 per cent. With a view to utilize the fluorspar flotation concentrates which were obtained in the form of fines, comprehensive studies were undertaken on agglomerating the concentrates assaying CaF_2, 83.5; $CaCO_3$, 8.6; and SiO_2 5.3 per cent into lumps for proper handling and charging in the steel smelting furnace both by briquetting and pelletising techniques using various types of binders. Of the two techniques, pelletising was found to be more efficient.

RRL, HYDERABAD

Vegetable Seed Sheller—A universal sheller has been designed and fabricated. The sheller consists of a rubber-lined disc mill which crushes the pods without disintegrating the seeds. The crushed material falls on a perforated corrugated shaker moving with a reciprocating motion. Large-sized shells are retained on the screen and are discharged at the lower end. The seeds along with the smaller hulls and dust fall on an inclined, horizontally moving belt conveyor and roll down and fall into a receiver, while the shells and dust are carried away to the other end where they are discharged. Devices for changing the inclination of the moving belt separator and giving periodic tapping have been provided. In the operation of the unit, seeds are not broken and contain less than one per cent of shells.

The sheller has been used for shelling Kamala seed pods and separating the shells from seeds. The machine can also be used to shell other vegetable seeds.

CEERI, PILANI

Electronic Flash Tubes—These devices find extensive use in stroboscopes for photographic study of fast moving objects like machine parts in electronic flash guns. Further, in modified form, they are used for supplying pulsed 'pump-power' in LASERS (Light amplification by stimulated emission of radiation). An electronic flash tube and its associated power pack capable of giving several thousand flashes of intense white light have been developed. The light output of the unit is 2000 lumen-second and its efficiency is 23 lumens/watt. The colour temperature of the flash light approximates that of sunlight.

R R L, Hyderabad — Universal sheller designed and fabricated at the Laboratory

Sponsored Research

Kinetics of Pyrophosphate Hydrolysis—The first, second, third and fourth dissociation constants of pyrophosphoric acid were determined at different temperatures (25°, 50°, 60°, 65° and 70°C.) A relationship between temperature and third and fourth dissociation constants has been established. From the relationship, dissociation constants at any temperature in the range 25-70°C. can be estimated.

The dissociation constants of pyrophosphoric acid at different ionic strengths (0.1, 0.42 and 1.0) were also determined. From these values, the dissociation constants at zero ionic strength were obtained by extrapolation. Further, certain equations of Debye-Huckel form giving dependence of the third and fourth dissociation constants on ionic strength were also obtained, so that these constants for any other desired ionic strength can be calculated — H. C. Malhotra & R. P. Mitra, Department of Chemistry, Delhi University, Delhi.

Reactions Under Electric Discharge—With a view to elucidating the influence of physical changes occurring under electric discharge on the phenomenon of Joshi effect, the effect of ageing, heat treatment and rest on hydrogen, helium and neon under silent electric discharge has been studied. While ageing causes a general increase in the relative Joshi effect, an overdoing of it causes a decrease. Heat treatment leads to a decrease in the effect, but a moderate ageing following this treatment considerably enhances the effect. A period of rest causes a deterioration both in the current and the effect.

The changes occurring in the effect and the discharge current consequent on various processes are compatible with the assumption that the process involved in the formation of the absorption-like layer is physical absorption, rather than chemisorption—H. J. Arnikar & T. Shankeranarayana Rao, Department of Chemistry, Banaras Hindu University, Varanasi.

PERSONAL

The Vice-President, CSIR has been pleased to accord approval to the officiating appointment of Shri K. Venkataraman, Under Secretary, Publications & Information Directorate, as Deputy Secretary with effect from Dec. 14, 1962.

Appointments

SARVASHRI B. K. MAJUMDAR & RAKESH —Senior Scientific Officers : Grade I, CMRS, Dhanbad (Nov. 15 & 20, 1962).

SHRI S. K. PANIKKAR—Junior Scientific Officer, NCL, Poona (Nov. 13, 1962).

SHRI S. R. RENGANATHA RAO—Civil Engineer, CECRI, Karaikudi (Nov. 22, 1962).

SHRI A. K. DUTTA—Accounts Officer, NML, Jamshedpur (Sept. 6, 1962).

Promotions

SHRI S. GOPAL RAO, Senior Scientific Officer : Grade II, CFRI, Jealgora—Senior Scientific Officer : Grade I, CFRI, Jealgora (Nov. 24, 1962).

DR. G. R. KELKAR, Junior Scientific Officer, NCL, Poona—Senior Scientific Officer : Grade II, NCL, Poona (Nov. 13, 1962).

SHRI KUNDA SINGH, Senior Technical Assistant, CFRI, Jealgora —Junior Scientific Officer, CFRI, Jealgora (Nov. 24, 1962)

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SHRI N. RAMAKRISHNA relinquished charge of the post of Deputy Secretary, CSIR, New Delhi on the afternoon of Dec. 4, 1962 consequent on the expiry of the period of his re-employment.

SHRI K. C. GOVEL, relinquished charge of the post of Principal Engineer Officer, CSIR, New Delhi on the forenoon of Dec. 11, 1962 consequent on his services being requisitioned by his parent office CPWD. SHRI R. S. PANESAR, Structural Engineer Officer, will look after the work of Principal Engineer Officer for the time being.

DR. D. S. BHATIA, Assistant Director, CFTRI who has been offered an appointment by FAO as Nutrition Officer, U. N. Technical Assistance Mission to the Government of Vietnam left Bangalore *en route* to Saigon on Dec. 10, 1962.

SHRI A. K. GHOSE, Senior Scientific Officer : Grade I, CMRS, Dhanbad has been released with effect from Nov. 7, 1962 to take up the appointment as Professor of Mining at the Regional Engineering College, Srinagar.

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DR. S. HUSAIN ZAHEER, Director-General, Scientific & Industrial Research has been nominated member of the Indian National Committee on Oceanic Research.

DR. B. R. NIJHAWAN, Director, NML, Jamshedpur has been nominated member of the Board of Governors, Indian Institute of Technology, Kharagpur.

DR. N. K. PANIKKAR, Director, Indian Programme, International Indian Ocean Expedition, New Delhi has been nominated Chairman of the Fisheries Committee of the Indian Council of Agricultural Research.

SHRI S. P. VENKITESHWARAN, Assistant Director, NAL, Bangalore has been nominated member of the Development Council for Instruments, Bicycles and Sewing Machines of the Ministry of Commerce & Industry.

DR. H. P. BHATTACHARYA, Senior Scientific Officer : Grade II, NML, Jamshedpur has been nominated member of the Panel to examine the draft revision of IS : 406-1953 methods of chemical analysis of slab zinc and zinc base alloys of the Indian Standards Institution.

Dr. R. Rajagopalan

Dr. R. Rajagopalan has been appointed, on promotion, Assistant Director in the N.I.H. Project (financed by the National Institute of Health, U.S.A.), CFTRI, Mysore (w.e.f. Aug. 17, 1962).

After graduating from the University of Rangoon, Shri Rajagopalan joined the Department of Biochemistry, Indian Institute of Science, Bangalore, in 1931, as a student and later worked there as a member of staff till July 1957. During 1938-41, his services were lent to the University College and Judgon College, Rangoon. In August 1957 he joined CFTRI, Mysore as Senior Scientific Officer.

Dr. Rajagopalan has published over 150 scientific papers. He is a Fellow of the Royal Institute of Chemistry, London.

Dr. S. Balakrishna

Dr. S. Balakrishna has been appointed Assistant Director, NGRI, Hyderabad (w. e. f. Oct. 25, 1962).

Born in Guntur (Aug. 3, 1931), Shri Balakrishna had his early education at Waltair and obtained his M. Sc. degree in Geology from the Andhra University in 1953 and Ph.D. Degree from the Osmania University in 1955. He then joined the Osmania University where he gained considerable experience in teaching and guiding post-graduate students. During 1956-57 he worked as a post-doctoral Research Fellow in Dunbar Laboratories, U.S.A. In 1958, Dr. Balakrishna was appointed Reader in the Osmania University. He participated in the International Symposium of Volcanology held in Japan in 1962.

Since 1952, Dr. Balakrishna has been engaged in the study of geological and geophysical problems. He has carried out extensive investigations on the physical properties of rocks in relation to their geological features and has published over 50 papers. He is a Foundation Fellow and Member, Council of Geological Society of India and Council of the Mineralogical Society of India ; Member, Geological Societies of America and Japan and Fellow of the Society of Exploration Geophysicists of Japan and Geological and Mining and Metallurgical Society of India.

PATENTS & PROCESSES

Patents Filed

85148 : *A process for the preparation of dihydroisojasmone and δ-undecalactone (peach aldehyde)*—S.G. Patnekar, B.M. Dubash, H.H. Mathur & S.C. Bhattacharyya, NCL, Poona.

85446 : *Preparation of carboxylic cation-exchange materials*—N. Krishnaswamy, V.K. Indusekhar & B.D. Dasare, NCL, Poona

85447 : *Heat flow transducer*—M.L. Gupta, CBRI, Roorkee

Patents Sealed

72444 : *Antimony-free white enamels*—Atma Ram & S.S. Verma, CGCRI, Calcutta.

74450 : *Improvements in or relating to the manufacture of maleic anhydride*—B.S. Trehan & R. T. Thampy, Shri Ram Institute for Industrial Research, Delhi.

74596 : *A process for the production of middle distillates such as illuminating fuels (kerosene substitutes) and diesel fuels from coal tar and fractions thereof*—M.G. Krishna, R. Vaidyeswaran, B.N. Rao, M.J.A. Khan & S.H. Zaheer, RRL, Hydrabad.

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